MITSUBISHI ELECTRIC

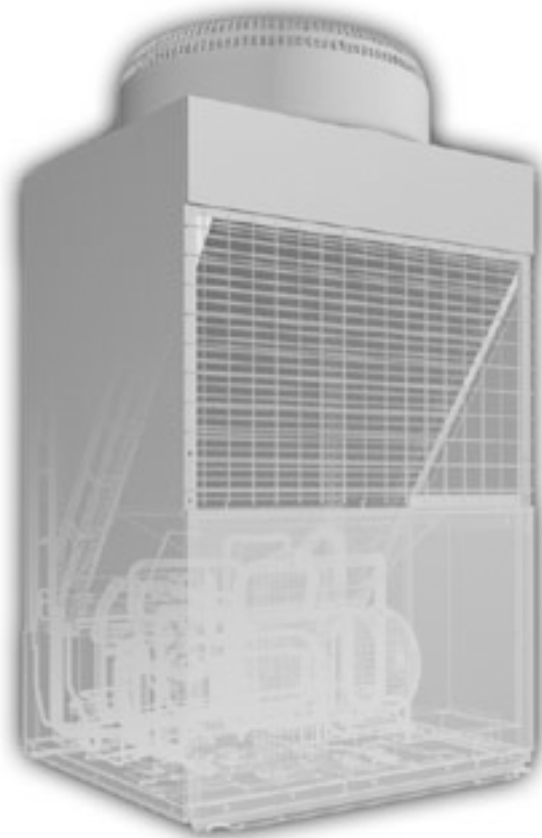# Mitsubishi Electric Air Conditioning Network System
Integrated centralized control software TG-2000A
Operation Manual (Site adjustment)

Contents

Please read this manual before using the unit.

Please keep this manual for future use.

WT03901X14
2008 - Oct. (Ver. 5.1*/5.5*)

Contents

In this manual, Microsoft® Windows Vista® Business is called Windows Vista, Microsoft® Windows® XP Professional is called Windows XP and Microsoft® Windows® 2000 Professional is called Windows 2000. In this manual, Microsoft® Excel 2007/2003/XP/2000 is called Excel.

Trademarks

MS, Microsoft, Microsoft logo, and Windows are registered trademarks and trade names of Microsoft Corporation. Adobe logo, Acrobat, Adobe PDF logo, Reader are registered trademarks and trade names of Adobe Systems Incorporated.

Each company may use as registered trademarks and trade names the product names used in this manual.

－About this manual－

The operation manual consists of three volumes, "Site adjustment", "Management", and "Wide area". This manual is "Site adjustment". These manuals are accessible from the Help menu on TG-2000A. Acrobat® Reader is required to read these manuals. (Ver. 5.0E or later recommended)

– Term description –

- "Man-machine"   : Indicates a computer with integrated centralized control software TG-2000A.
                    (Man-machine interface abbreviation)
- "AG-150A" and "G-50A":
                    Refer to centralized controllers AG-150A and G-50A.
                    On the screen of integrated centralized control software TG-2000A, AG-150A and G-50A may appear as AG-150A/G-50A, AG-150/G-50, or G-50.
                    TG-2000A Ver.5.50 or earlier does not support AG-150A connection. Unless otherwise specified, read AG-150A/G-50A as G-50A in this manual.
- "PLC"   : Abbreviation for Programmable Logic Controller.
                    The TG-2000A system uses two PLCs; the electric amount count software and PLC for general equipment software.
                    The electric amount count software measures the electric amount with the PLC, the general control operates and monitors the general equipment, etc.
- "Power apportioning billing"
                    Billing support function that apportions the electric amount used by the air conditioner. The following three methods are available:
                    Manual electric amount input
                    ... A watt hour meter (WHM) is not connected, and instead the charge percentage is calculated according to the percentage of power used. The service power is measured with the separately installed WHM, and the service charges are obtained from the charge percentage.
                    Electric amount pulse count
                    ... The electric amount is measured by the PLC, and the service electric amount is monitored by via the LAN to automatically apportion and calculate the electricity charges.
                    The designated PLC and optional software are used.
                    Direct read in of power value into computer
                    ... The RS-485 output watt hour meter is directly connected to the computer containing the integrated software (via an RS-232-C/RS-485 converter), and the service power is input.
                    The service power rate is automatically apportioned and calculated.
- "WHM"   : Abbreviation for Watt Hour Meter.
- "Service power rate":
                    The service power rate indicates the power rate (apportioned rate) apportioned based on the service state of the air conditioner, etc.
- "Always connected to AG-150A/G-50A system - Activate": <Recommended mode>
                    Refers to charging method that is operated by connecting this integrated centralized control software TG-2000A constantly to the AG-150A/G-50A and PLC via a LAN.
                    Leave the computer power ON to keep the TG-2000A running.
                    PI controller instead of the PLC can be connected.

- "Always connected to AG-150A/G-50A system - Deactivate":

  Refers to charging method that connects this integrated centralized control software TG-2000A to the AG-150A/G-50A and PLC once a month via the LAN. The charges for the last month are calculated and output at once. The charging function can be used efficiently by starting the computer and integrated centralized control software TG-2000A on the day after the set settlement date.

  PI controller instead of the PLC can be connected.

- "IC I/O signal" : Refers to a contact mounted on the air conditioner's indoor unit. A general equipment can be connected to the IC I/O signal using this contact and a PLC for general equipment to operate and monitor the system.

- "DIDO controller": Refers to the controller (PAC-YG66DCA) that can monitor or control general
  (DC) equipment.

- "AI controller" : Refers to the controller (PAC-YG63MCA) that has a function to measure temperature
  (MCT) and humidity.

- "PI controller" : Refers to the controller (PAC-YG60MCA) that has a function to calculate cumulative
  (MCP) pulses from such metering devices as watt-hour meter.

- About screen -
  - This instruction manual may use the development version screen in some case.

- Simple operation manual -
  - A simple operation manual is available in addition to this instruction manual (Site adjustment, Management). The simple operation manual is stored as a pdf file in the "Manual" folder on the TG-2000A Setup CD. Acrobat Reader (Version 5.0E or later recommended) is required to view this pdf file.

1. Safety Precautions

- Please read the Safety Precautions section very carefully before using the unit.
- The safety cautions provided here are very important for your safety. Please observe them at all times.
- The degree of danger involved with incorrect operation of the unit are indicated in this manual using the following symbols.

⚠ WARNING	Incorrect operation could result in death or severe injury.
⚠ CAUTION	Incorrect operation could result in injury or damage to property.

- After reading this information, please keep this manual together with the operation manual (Management) in a location where the operator can see it. Also, when changing operators give both of these manuals to the new operator.

Note : Please observe the safety precautions detailed in the installation manuals and operation manuals of the other machines such as computers, peripherals, and air conditioners.

⚠ WARNING

The customer must not do any wiring or electrical work.
Have the dealer or a specialist do any wiring or electrical work. Do not do it yourself. Doing the work yourself may result in improper installation which may cause electric

Do not make any improvements or repairs for any reason.
Making improper improvements or repairs may cause electric shock or fire. For repairs, consult the company from which the unit was purchased.

Stop operation immediately if an error message appears on the computer and the unit stops or is not operating properly.
Failing to do so may result in fire or damage to the unit. Immediately contact the company from which the unit was purchased.

Do not relocate the unit yourself.
Relocating the unit yourself may result in incorrect installation which may cause electric shock or fire. To relocate the unit, consult the company from which the unit was purchased.

Read the installation manuals and operation manuals for the computer, peripherals and other machines.
Improper operation could result in fire or damage to the computer or peripherals.

Read the installation manual and operation manual for the air conditioner controller.
Improper operation could result in fire or damage to the air conditioner controller.

⚠ CAUTION

Do not use the product for any other purpose.
This product is for use with the Mitsubishi Electric Building Air Conditioning Control System. Do not use it with any other air conditioning control system or for any other application. Doing so may cause the unit to malfunction.

Do not use with other applications.
Use the PC that uses this product with this product only. Using it with other applications may cause faulty operation.

Keep children away from the unit.
Inspections and maintenance can be dangerous. Do not let children near the unit during these times.

Warning to all users (User Agreement)
This document is a contract between the customer and Mitsubishi Electric Corporation. By using this application, you agree to the following conditions and are considered a user.
- Mitsubishi Electric and associated suppliers are not responsible for any collateral, secondary, or special damages, even if notified by the distributor of the possibility of a certain type of damage. Mitsubishi Electric is not responsible for any rights claimed by a third party.

Safety Guidelines for the Computer Running the with the TG-2000A.

(1) Precautions for selecting a computer

Select a desktop computer.
- Depending on the function, it is recommended to use a desktop as opposed to a laptop computer as there is a tendency for heat to build up in a laptop.
- Some laptop computers cannot be run for long hours.

Computer based UPS recommended.
- It is recommended to use a UPS to protect data from momentary power outages or power cuts.
  It is particularly recommended to employ a UPS when using power apportioning billing.

Use a computer/operating environment with specifications capable of running the TG-2000A function.
- Run the function using the specified OS.   There is a possibility that the function cannot be used when running an OS other than specified.
- **Use a business model computer.**   There are cases when it is not possible to install or run the application with other applications on a computer or laptop intended for personal use.

(2) Precautions for General usage

Do not place the computer in any of the following locations.
- An error or accident may occur when using in the following environments.

  A place where there is: a lot of dust, a likelihood of shock or vibration, instability, a heater or speaker nearby, direct exposure to sunlight, a likelihood of dropping, a possibility that the computer may be exposed to moisture or high temperature, or where it may be exposed to sudden temperature fluctuations or heat.

Ensure to read the computer/peripheral instruction manual.
- A fire or accident may occur due to improper use of the equipment.

Avoid covering the computer or AC adapter with a cloth or blanket, or locating them on or near a heater.
- There is a possibility of internal temperature build-up, fire or burning under the above situations.

Do not close the lid when using a laptop.
- There is a possibility of an internal temperature build-up, fire or burning. Use in an area with sufficient ventilation.
- The system may start Stand By or Hibernate function and stop functions of TG-2000A by closing the lid.

Cut the power or disconnect the power cable immediately if smoke, or an abnormal smell or noise emanates from the computer.
- Using the computer in the above circumstances may result in fire, burning, or electric shock. Please consult the maker of the equipment/computer.

Do not touch the computer air vent.
- The air emitted by the ventilator is hot and may result in burning if exposed to the skin.

Do not tamper with the computer fan.
- Tampering with the computer fan may result in a temperature build-up, fire, or accident.

Use the hard disk, floppy disk, or CD media as indicated.
- Do not expose the hard disk, floppy disk, or CD to shock or vibration during use.
- Do not cut the power or reboot the computer while the hard disk, floppy disk, or CD is in use.
- Always turn OFF the power when moving the computer.

Note: Refer to chapter 2 and 5.

(3) Other precautions

Precautions relating to the computer and peripheral equipment
- Please consult the maker regarding damage to the computer or peripheral equipment.   We will not be held responsible for damage occurring at the user's site.

Safety Guideline for LAN connection of AG-150A/G-50A

Connect AG-150A/G-50A to a private network.
- AG-150A/G-50A are designed to be used with TG-2000A on a private network.
- Use a security device such as a VPN (Virtual Private Network) router when connecting to the Internet.

2. System Requirements

2.1 Requirements (system recommendations)

	TG-2000A version	System Requirements
AG-150A and G-50A compatible TG-2000A	TG-2000A Ver.5.5* or later *1	OS: Windows Vista/XP (Not compatible with Windows 2000) Refer to the table below for details.
To use the functions supported by older versions of G-50A compatible TG-2000A	TG-2000A Ver.5.1*	OS: Windows XP/2000 (Not compatible with Windows Vista) Refer to the table below for details.

1 Upgrade TG-2000A Ver. 5.20 to Ver.5.5 or later.

We recommend the following software and hardware when using this application (TG-2000A).

Item	Requirement		Recommended
PC	PC/AT interchangeable machine (Recommended: IBM, HP,DELL)		Operation check completed, using IBM, HP and DELL (Business model is recommended)
CPU	Core^{TM} 2 Duo 1.66GHz or faster (Windows Vista for Core 2 Duo)		Core^{TM} 2 Duo 2.4GHz or faster
	Pentium® M 1.7GHz or faster		Pentium® M 2.0GHz or faster
	Pentium® 4 2.4GHz or faster		Pentium® 4 2.8GHz or faster
Memory	In Windows Vista : 1GB or more		2GB or more
	In Windows XP / 2000 : 512MB or more		1GB or more
HDD	Standard	6 GB or more (2GB or more of C drive free space necessary)	40GB or more of C drive free space necessary When using the trend function, the drive used for automatic output must have the following free space according to the number of groups. 200 groups = 2GB, 500 groups = 5GB, 1000 groups = 10GB, 2000 groups = 20GB
	Wide area	20GB or more (Free space)	Standard : max. 200MB/site
Storage device	FDD, CD-ROM drive		Devices other than those shown at the left may also be installed.
Resolution	1024 × 768 or higher, 65536 colors or more		
Serial port	1 port or more		Required when using RS-485 communication WHM (Not necessary when using PLC)
LAN	1 port (10BASE-T/100BASE-TX)		*1
Modem	56K modem or TA		Required when using a modem in wide area mode.
USB	2 port or more		It uses it for the data backup.
OS	Windows Vista® Business Service Pack 1 *2		English version only *Computer must support each OS.
	Windows® XP Professional Service Pack 3 *2		English version only *Computer must support each OS.
	Windows® 2000 Professional Service Pack 4 *2 *Use TG-2000A Ver.5.1* for Windows® 2000 Professional.		English version only *Computer must support each OS.
Other	Computer must be dedicated for this use (TG-2000A).		**Must be used for 24-hour constant operation (Only some functions. Refer to section 2.3 for details)**

*1 Purchase the option, or use the equipment recommended for the computer when purchasing the computer.

*2 It is necessary to correspond to each Service Pack. TG-2000A is not normally set up at the uncorrespondence. Please apply Service Pack of the correspondence.

2.2 Compatible Units

The TG-2000A has two main functions: air conditioner controller and cost accounting. However, not all functions are available with all air conditioners.

Table: Compatible units and function list (O: supported, △: Certain restrictions apply, ×: Not supported)

Function / Model	Control/ Maintenance	Charging (Billing) without WHM	Charging (Billing) with WHM	Energy Saving/ Peak Cut
Y series	O		O *1	O
Super Y series	O		O *1	O
R2 series	O		O *1	O
WR2 series	O		O *1	O
WY series	O		O *1	O
Multi S series	O		O *1	O*5
Free plan Indoor unit	O		O *2	O
Free plan LOSSNAY	O		O *3	△*6
OA processing unit	O		O *1	△*7
"A" control type *4	O (Adapter required)		O *1	△*8
"K" control type *4	O (Converter required)		O *1	△*9
Room Air Conditioner	O (Adapter required)	×	△ (Requires separate watt hour meters. Bills calculated based on the reading of each watt hour meter)	△*10
Air To Water Booster unit	×	×	×	×
Air To Water HEX unit	×	×	×	×

*1: Can be calculated for each charging block. May not be available with some older models.

*2: Indoor unit models before Free Plan models do not support a charge apportioning billing method based on the "capacity save." The existence of even a single unit of those types in the system requires that the method of charge apportioning billing be set to either "Thermo on time" or "Fan operation time."

   Certain restrictions apply to large-capacity indoor units when malfunctions occur.

*3: LOSSNAY groups to which the remote controller is connected support the charging system.

*4: Not all of the A-control and K-control units support these functions. (e.g., The calculation of the charge for the auxiliary heater may not be handled by these units.)

*5: Outdoor unit capacity control function is not available.

*6: Only the function to stop the units is available.

*7: When the attribute is IC (indoor unit): Same type of energy-save control unit as with the Freeplan Indoor unit is possible.

   When the attribute is FU (LOSSNAY with a heater/humidifier): no direct energy-save control is possible.

*8: Inverter models support the outdoor unit capacity save control function.

*9: Outdoor unit Thermo-OFF control function is not supported. Only the fan control function is available.

*10: Only the temperature control function or the function to stop the units is available.

2.3 Restrictions

The following restrictions apply to the TG-2000A application.

(1) System configuration limits

Use TG-2000A with the versions described in this manual with AG-150 Ver. 1.0* or later or with G-50A Ver. 3.22 or later.

	Number of units	Notes
AG-150A/G-50A	Max. 40 units	AG-150A Ver.1.0* G-50A Ver. 2.10 or later *1,2,3,4,5,6,8,9,10,11
Indoor unit	Max. 2000 units (including all IC, KIC, AIC, LC, FU, MCT, MCP and DC *12)	Max. 50 units/(AG-150/G-50A) *12,13
General equipment (PLC)	Up to 640 units (including 20 PLCs for general equipment)	Max. 32 units/PLC
General equipment (IC I/O signal)	Up to 2000 units *7	Max. 350 units/(AG-150/G-50A)
PI controller (MCT) *14	UP to 40 units *13 (Up to 160 meters)	Max. 5 units/(AG-150/G-50A) Max. 40 units/TG-2000A
Meter *14	Up to 160 units (5 PLC units for power rate pulse count)	Max. 32 units/PLC

[Symbol] IC: Indoor unit, LC: LOSSNAY, FU: OA processing unit, AIC: "A" controller,
KIC: "K" controller, MCP:PI controller, MCT:AI controller, DC:DIDO controller

*1: The version can be confirmed with the method explained in section 8.6.3.
*2: Use G-50A Ver. 2.31 or later to use the power apportioning billing function.
*3: Use G-50A Ver. 2.50 or later to use the energy saving/peak cut function.
*4: Only 32 units each can be connected for the PLC for general equipment. These are the general equipment No. 1**-1 to 32 listed in Section 8.9.4. 33 to 100 cannot be used due to restrictions for the PLC for general equipment.
*5: When G-50A is more than Ver.2.50, TG-2000A of Ver.2.00 does not operate.
*6: Use G-50A Ver. 2.60 or later when using the night mode or auto change over function.
*7: Up to 350 general equipment units can be connected to the IC I/O signal with each G-50A. However, the integrated software TG-2000A can control only up to 2000 general equipment units connected to the IC I/O signal. Use G-50A Ver.2.70 or later when using the IC I/O signal function.
*8: The combination use of TG-2000A Ver4.70 and G-50A Ver2.71 expands the set temperature range limit function (such as the upper limit of the set temperature for the Cool (Dry) mode, the lower limit for the Heat mode and the upper and the lower limit for the Auto mode).
*9 The combination of TG-2000A Ver.4.80 and G-50A Ver.2.51 support a charge apportioning billing method of A-control and K-control units.
*10 When using G-50A initial setting Web, the combination of G-50A Ver.2.80 or later and TG-2000A Ver.4.80 or later must be used.
*11 When using the 1ºF temperature setting function, use the combination of G-50A Ver.3.00 or later and TG-2000A Ver.5.00 or later. The indoor unit supporting the 1ºF temperature setting function is also required.
*12 1 contact point for DIDO Controller is converted to 1 unit. Up to 50 units are connectable to each AG-150A/G-50A.
*13 DIDO Controller, AI Controller and PI Controller are supported by G-50A Ver.3.20 and TG-2000A Ver.5.10 or later.
*14 Only either PLC or PI Controller can be connected for meter connection. **Both cannot be connected at the same time.**

(2) Group setting restrictions

Item	Restrictions	Note
Remote controls	2 per group	* Other remote controls besides M-NET type will not work *1
Number of indoor units connected to a group	1 to 16	* IC, AIC, KIC, LC and DC cannot be used within the same group. It is not possible for group settings to span AG-150A/G-50A *2,3
Number of SC and RC connected to a group	4 per group	* The number of AG-150A/G-50A is not included
Groups per floor	Max. 50 groups per floor	Up to 50 groups can be displayed on one floor of the whole building window.

*1 The ME remote controller and MA remote controller cannot be used together for the same group.
*2 Set the same function unit for the group.
*3 Set units with different models or functions in another group.
[Symbol] SC: System controller, RC: Remote controller, DC: DIDO controller

(3) Block setting
- The block comes in two types, operation block and charge block.
- The operation block is an aggregate of groups, and it is possible to set a different model group for the same operation block.
- The charge block consists of an aggregate of operation blocks.

Group
Block for operation
Block for charging
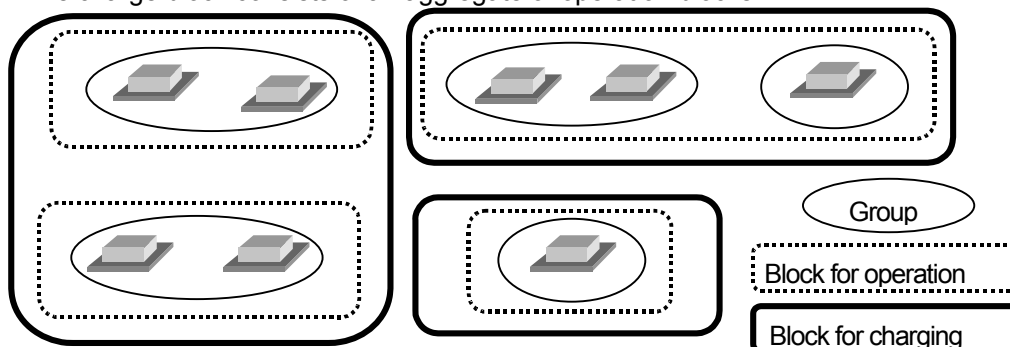
* The blocks controlled with the AG-150A/G-50A browser are the same as the operation blocks. Operation blocks extending over AG-150A/G-50A can be set only with the integrated software TG-2000A.
- The operation block should be set individually for the K-control model, A-control model, DIDO controller, LOSSNAY and free plan indoor unit.

(4) Notes on using K-control models
When using a K transmission converter (model name: PAC-SC25KA, PAC-SC25KAA(-E)) to manage K-control models, take note of the following. See the documentation provided with the K transmission converter for more detail.
- The address of the K transmission converter will be the smallest address of the K-control model + 200.
- Set the K control model addresses so that they are larger than the M transmission model addresses.
- When setting a group containing K-control models, make the group number the same as the smallest unit address in the group.
- K-control LOSSNAY models are not applicable.

(5) Notes on using A control mode
- Use the A/M-NET Adapter (model name: PAC-SF48MA(-E)). Set the group to "Group with only A-control".

(6) Countermeasure when an error occurs
- Note that each control or function may not operate properly when rebooting (*1) or when a fault occurs in the central controller AG-150A/G-50A or other controllers and so on. Since each error is displayed when it occurs, it is recommended to solve the faults quickly.

  *1 Indicates that the system is restarting.

(7) Notes on charge system
- **This charge system does not actually calculate the power consumption by each air conditioning unit. Rather, it helps calculate the capacity output of each air conditioning unit, using the unique apportioning method developed by Mitsubishi.**
  Mitsubishi shall not be held responsible for any problem or damage resulting from the use of TG-2000A, including but not limited to the cases as described in section (8) below.
- If there is a group that is not set in the charge block, the electric power amount for that group will not be included in the air-conditioning charge. If there are groups which require charging to be divided, set those groups as operation blocks or charge blocks to accomplish this.
- Some older M-NET control indoor units are not compatible with the charge function.
- When the system is changed or the air conditioner is extended, which may require address changes, the charge calculation may be affected in some cases.
  Executing such changes or extensions are recommended after gaining approval from the building owner(s).
- Irregular processes, such as repeated apportioning of power or non-apportioning of power (*1), may occur due to communication errors with the central controller AG-150A/G-50A , PLC or PI controller , etc. If the rates are not apportioned, a recovery process must be executed with the charge maintenance function, etc.

  *1 For power apportioning billing function's (Direct read in of power value into computer) function

- The power rate accuracy relies on the watt hour meter. The measurements for the gas, etc., also rely on the meters, so an error could occur in the accuracy during operation.

- When using the power apportion billing in the always connected to AG-150A/G-50A system state, the integrated centralized control software TG-2000A must be run **at all times (24-hours)**. The air conditioning rate results will appear in red if the software stops. When using the direct read in of power value into computer function (RS-485 WHM), power apportion billing in the always connected to AG-150A/G-50A system state is used.
- Only one of PLC (PAC-YG11CDA), PI controller (MCP), and RS-485 can be connected with watt hour meter. The system cannot accept the mixed connection. Also, in the case of using RS-485, some functions are restricted.
- Perform the "Charging Test Run Check" as described in section 11.3 before using the apportioned electricity charge function.

(8) Charging (Billing) restrictions

> The air conditioning cost calculation method use by this integrated centralized control software TG-2000A is the Mitsubishi proprietary general electric power apportioning method.
> Depending on each country's laws and regulations, etc., there may be cases these measured charges cannot be used for certificate of transaction.
> Before starting use, the building owner and building tenant should bind an agreement or contract indicating that the air conditioning charges are part of the usage fees with an independent contract indicating "The air conditioning charges are collected with an apportioning method that considers the air conditioner's operation state instead of charges according to the measured power rate (including during emergency operation when a failure occurs)".
> (1) A watt hour meter is not installed on each air conditioner's power supply section to calculate the rate.
> (2) This system cannot be used for applications requiring calculations made by installing a watt hour meter on each air conditioner.
> (3) This system estimates the air conditioner apportioned power rate, and cannot be used as a certificate of transaction.
> (4) Even if the air conditioner is run for the same length of time, the air conditioning charges may differ according to the air conditioner's operation load state.
> (5) Even if one or several air conditioners are connected to one watt hour meter, the watt hour meter apportions with the total power rate. Thus, an error could occur. Multiple air conditioners are considered as one air conditioner when apportioning and calculating.
> (6) The air conditioner is energized even when stop, so the air conditioning charges are calculated even if the air conditioner is not used.
> (7) If a fault occurs in the computer, AG-150A/G-50A, PLC or PI controller, remedial measures will be taken with the past average apportioned rate, etc.
> (8) Mitsubishi will not be held liable in any case as the watt hour meter and gas meter, etc., rates are retrieved as pulses, and the performance and accuracy rely on the meters.

* The gas meter, etc., also counts with a pulse converter and thus cannot be used as a certificate of transaction.
  Note that the counted value includes remedial measures taken when a fault occurs.

(9) Energy saving and peak cut functions
- Note that when using the peak cut function, Mitsubishi will not be held liable even if faults occur when the service power rate exceeds the contracted power rate value due to the control operation settings or a fault in the AG-150A/G-50A, PLC or PI controller.
- The energy saving and peak cut control units are the operation block and outdoor unit in the AG-150A/G-50A unit.
- During peak cut control (for PLC(PAC-YG11CDA)), the AG-150A/G-50A monitors only one watt hour meter. This can be set for each AG-150A/G-50A. This cannot be used with a system for which two or more watt hour meters are connected to the air conditioner controlled by one AG-150A/G-50A. Use the power rate count software Version 1.01 or later.
- During peak cut control for watt hour meter connected with PI controller, only one watt hour meter monitored by the AG-150A/G-50A can be selected. When using other AG-150A/G-50As for peak cut control (*1), up to three AG-150A/G-50As can be connected with the AG-150A/G-50A.
  - *1：AG-150A/G-50A, connected with watt hour meter, monitors peak cut control lever every one minute. When the control level changes, the change reflect AG-150A/G-50As with one minute delay. Control level should be set with some float to avoid over peak cut electric power.
- During peak cut control (for Demand control equipment), up to 10 AG-150/G-50As can be monitored with PLC for demand input software. When using more than 10 AG-150A/G-50A s, install multiple number of PLCs. PLC for demand input software (PAC-YG41CDA) should be used for PLC.

(10) Set temperature range limit function
- On ME remote control system, the target for the temperature range limit setting is only ME remote controller and individual browser.
- On MA remote control system, the target for the temperature range limit setting is only MA remote controller and individual browser. This function cannot be used depending on the indoor unit model. （On MA remote control system, TG-2000A is supported by Ver.5.10 or later, and G-50A is supported by Ver. 3.20 or later.）

	Valid remote controller	Set temperature range limit
ME remote controller	PAR-F27MEA-E	Partly possible *1
	PAR-F27MEA-F	Possible
ME simple remote controller	PAC-SE51CRA-E	Impossible
	PAC-SE51CRA-F	Possible
MA remote controller	PAR-21MAA	Possible *2
Simple MA controller	PAC-YT51CRA	Impossible
	PAC-YT51CRB	Possible *2

*This chart is for TG-2000A Ver4.70 and G-50A Ver2.71systems.
*1 Only the lower limit of the set temperature for the Cool (Dry) mode and the upper limit for the Heat mode can be set with the ME remote controller, PAR-F27MEA-E.
　For ME remote controller, model name is written on the packing label or on the notice sticker on the backside of the remote controller lid.
　For ME simple remote controller, model name is written on the packing label or on the rated nameplate of the remote controller.
*2 This function cannot be used depending on the indoor unit models. This chart is for TG-2000A Ver5.10 (or later) and G-50A Ver3.20 (or later) systems.

(11) Initial settings
- Even if the operation settings are unclear, set all of the initial setting items selected for use. Some functions may not work if any setting is omitted.
- In addition to installing (setting up) the PLC software, the PLC must be initialized from the TG-2000A.
- Make sure the clock is synchronized with the clocks on AG-150A/G-50A and PLC. Resynchronize the clock as necessary.

(12) Operation of the integrated centralized control software TG-2000A
- Either "Activate" or "Deactivate" can be selected for "always connected to AG-150A/G50A system" of the TG-2000A. *Recommended setting: "Activate"
- When "Activate" is selected, the following functions are carried out automatically. When "Deactivate" is selected, these are carried out semi-automatically.
  - Power apportion billing data collection
  - Apportioning, settlement calculation process
  - Automatic output of settlement results
- The functions that run in the "always connected to AG-150A/G50A system" state can be used in "Activate" state, but cannot be used in the "Deactivate" state. These functions will not operate when the system is stopped.
  - Trend functions (temperature, on/off, mode, power amount, humidity)
  - Peak cut functions (only peak cut operation history functions)
- Set the TG-2000A to the "Deactivate" state when using the following functions.
  - Summer time ----- From the day prior to and after shifting to and from summer time
  - Season period --- From the day prior to and after shifting between normal and seasonal power apportion billing.
- The G-50A, PLC or PI controller errors cannot be detected while the TG-2000A is stopped. If the G-50A, PLC or PI controller is faulty, stopped or the power is OFF, the data required for charging will not be collected, and schedule operation of the air conditioner or general equipment will not be possible. Periodically confirm that the operation is correctly, and that no abnormalities are occurring.
- When "Activate" is selected, leave the computer power ON so that the integrated software TG-2000A program runs 24 hours. (to prevent the program from stopping, do not use the "System standby" or "System halt state" power supply optional functions.)
- The integrated software TG-2000A program runs for 24 hours, so always leave the computer's power ON.
- Do not put any access restrictions such as "Read Only" on the folders on WINDOWS, TG2000, MSSQL7, or on the ones that are specified in the user settings window of TG-2000A.

(13) Computer name
- Never change the computer name when setting up the integrated centralized control software TG-2000A. The software will not operate if the computer name and the server name are different.

(14) Expanding billing target devices
- Always stop the air conditioner, fan and power rate count PLC or PI controller, before expanding the devices.
- The billing function and power count function will not work correctly while the devices are being expanded.
- Always change and check the system settings with the TG-2000A after finishing the expansion work. Always test the operation after changing and checking the system settings.

(15) Using general equipment
- There may be cases when the general equipment cannot be monitored or operated due to a disconnection in the wiring with the general equipment or a fault in the PLC (or DIDO controller). Mitsubishi will not be held liable in the event of any damage. A circuit should be provided for remedial operations when a fault occurs.
- The license number does not need to be registered in the AG-150A/G-50A when using the PLC for general equipment software Version 1 Series.

(16) Function description
- The function/specifications may partially change and improvements may be made without any notice.

(17) TG-2000A License
- * Refer to the end of "Safety Precautions" in Chapter 1.

2.4 Other Devices

Other devices specified or recommended for use with the TG-2000A are listed below.

Name	Manufacturer	Model	Notes
HUB	(None specified)	(None specified)	10BASE-T must be usable.
Printer	(None specified)	(None specified)	Supports a page printer only (Must run under the OS used (Windows Vista/XP/2000).)
Watt hour meter (RS-485)	1 Northern Design (Electronics) Ltd. 2 Elcomponent Limited 3 CIRCUTOR 4 Elcontrol energy	1 POWER RAIL 323 + OPTION Module 2 AEM31D/485 3 CVM-BC-ITF-RS485-C2 4 ED39din 485	Only supports RS-485 output of the specified model and manufacturer
RS-232C/ RS-485 converter	(None specified)	(None specified)	Necessary when measuring the electric power. Ex) B&B Electronics Model 485DRJ Black Box Model IC520A-F or IC108A * Regarding watt hour meter 2, the converter from the manu-facturer may also emit light.
PLC * For electric amount pulse count * For PLC for general equipment software (Ver. 1 Series)	Mitsubishi Electric	CPU module : Q02CPU Base module : Q33B Power supply module: 　　　　Q61P-A1 　　　　or Q61P-A2 Input module : QX40 Output module: 　　　　QY40P Ethernet module: 　　　　QJ71E71-100	These are used for the power apportion billing (electric amount pulse count) or general equipment operation/monitor function. Dedicated PLC software (PAC-YG11CDA, etc.) is required for each function. * The output unit is not required for the electric amount pulse count PLC.
PLC * For PLC for general equipment software (Ver. 2 Series) * For PLC for demand input software (Ver.2 Series)	Mitsubishi Electric	CPU module : Q02HCPU Base module : Q33B 　　(Q35B, Q38B, Q312B) Power supply module: 　　　　Q61P-A1/A2 Input module : QX40 Output module: QY40P Ethernet module: 　　　　QJ71E71-100	Use for the general equipment's operation/monitor function, schedule or operation/monitor function of general equipment connected to IC I/O signal, interlocking control of air-conditioners and general equipment. Dedicated PLC software (PAC-YG21CDA) is required. *1 Also used with peak cut function connecting the demand controller. Dedicated PLC for demand input software (PAC- YG41CDA) is required. *1
Watt hour meter (for PLC or PI controller)	(None specified)	(None specified)	WHM corresponding to 0.1 sec. or longer pulse output (semiconductor relay) * 1kWh/pulse or less is required. (10/1/0.1 kWh/pulse)
UPS (Uninterruptible power supply)	(None specified)	(None specified)	Install when using the power apportion billing function. (Any type suitable for use with computers)

*1 This version is not compatible with the demand controller compatible peak cut function.

3. System Configuration

3.1 System Configuration Example

[Image drawing]
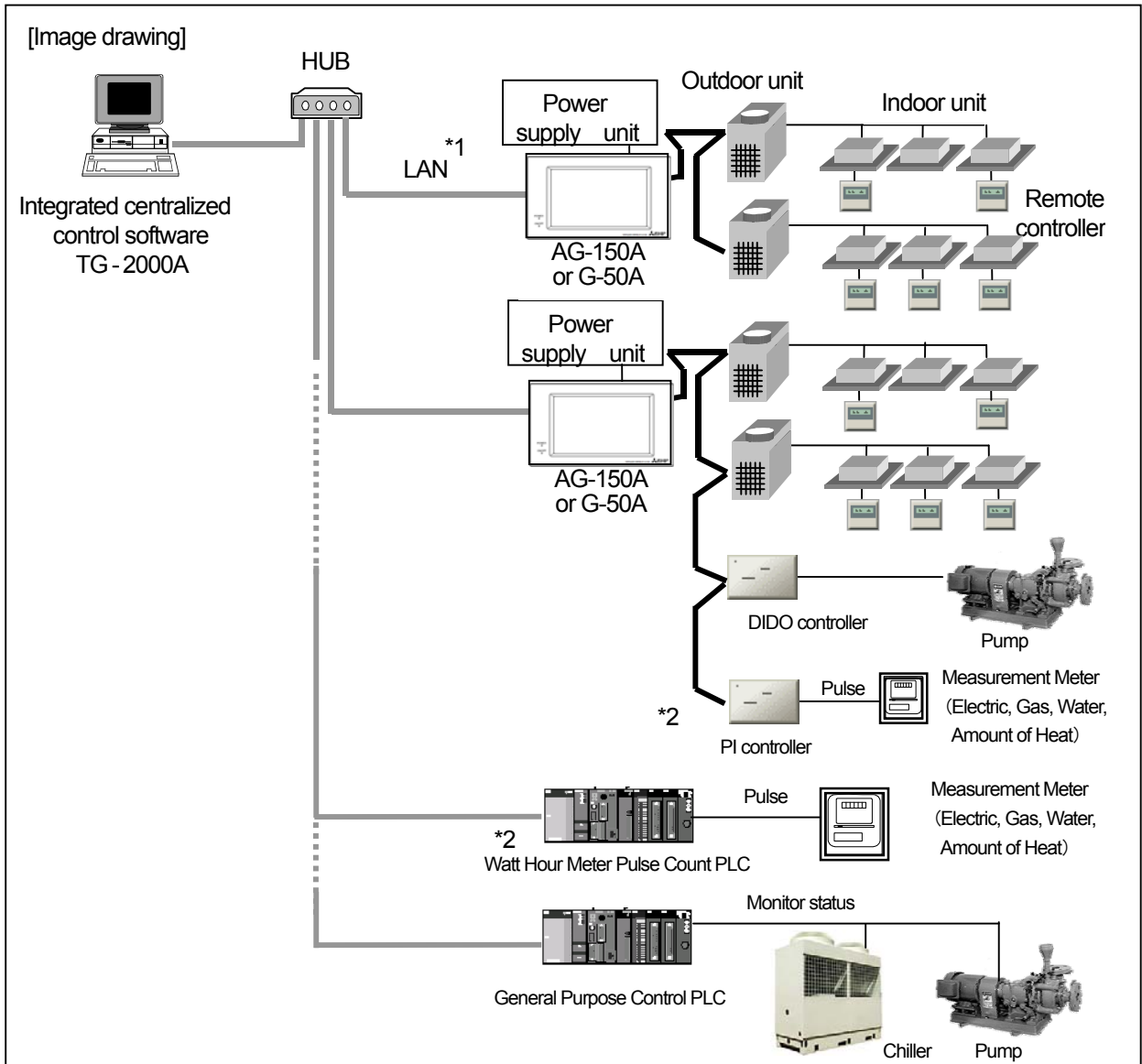
*1: Connect AG-150A/G-50A to a private network. (Only use on the private network.)
   Use a security device such as a VPN (Virtual Private Network) router when connecting to the Internet.
*2: Either PLC or PI Controller can be connected to the Measurement meter.

3.2 Hardware Connection Diagram
(1) LAN connection
   Connect the LAN cable to the computer. For the location of the LAN connector for the computer, refer to the Instruction Manual of the computer.
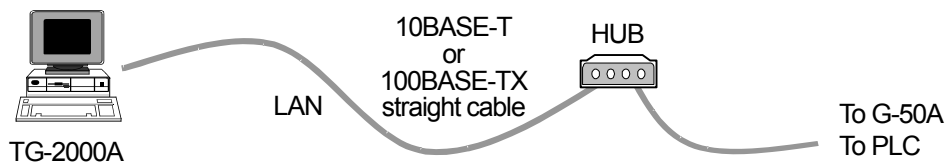
Note:
   • Use a HUB with a repeater or a switch.
   • When using a HUB with a repeater, execute the LAN cascade connection as shown below.
      For 10BASE-T, the cascade connection is executable up to a maximum of 4 stages.
      For 100BASE-TX, the cascade connection is executable up to a maximum of 2 stages.
   *Refer to the HUB Instructions Manual for the maximum connectable number of HUBs.

4.1   Flow of Site Adjustment

When the task of site adjustment is subdivided into smaller tasks as shown in the figure below, the tasks can be broadly grouped into four steps. The benefit of following these for steps when carrying out the tasks of site adjustment is that if troubles do arise, it will be clear which step caused the problem. This makes it easier to solve problems and this results in a more efficient execution of site adjustment tasks.
(Step 2 can be skipped when not using the PLC.)

Carry out site adjustment, by following the step by step instructions shown below.

| **Step 1   AG-150A/G-50A test run** |
| Check that the air conditioners and controllers are correctly configured and that the air conditioner works. |

*   For the test operation method of the air conditioner, DIDO controller, AI controller, PI controller and central controller AG-150A/G-50A, refer to the relevant installation manuals.

*   Check that only the air conditioner test operation has been completed before starting Step 1.

Use PLC?   NO

*   If PLC is not used, step 2 can be skipped.

YES

| **Step 2   PLC connections and installation** |
| Connect the PLC and device hardware, and install the PLC software into the PLC.   *1 |

*1.   Refer to the instruction manual for the PLC, electric amount count software or PLC for general equipment software.

| **Step 3   PC connections and settings** |
| Connect and set up the software and hardware on the PC with TG-2000A installed. Check that it is ready for operation. |

*   Refer to Chapter 4 in this booklet for details.

| **Step 4   TG-2000A system test run** |
| Check that the TG-2000A man-machine system can correctly operate air conditioner units of all the managed systems by issuing TG-2000A commands. |

<System example>

HUB

LAN

Power supply unit

Integrated centralized control software TG-2000A
Step 3

AG-150A or G-50A
Step 1

Step 1

Pulse

Meters (electricity, gas, water, calorific value)

PLC

Status monitor

Step 4

Step 2

Chiller   Pump

4.2 Tools for Site Adjustment

You will need the following equipment and reference material in order to easily carry out site adjustment.

<Measurement instruments>
- Tester : to check the wiring and the voltage

<Reference material>
- All necessary drawings of the air conditioning control system
- TG-2000A Instruction Manual (Site Adjustment (this manual), Management)
- Instruction Manual and Installation Manual for each air conditioner unit and controller
- Instruction manual for PLC, electric amount count software or PLC for general equipment software.

<Other material>
- License number : AG-150A/G-50A license number required to use functions
- Floppy disk : used when copying data
- CD-R/USB memory: used to store generated data and copy it to the site PC.
- TG-2000A CD : Integrated centralized control software TG-2000A setup disk
- Initial setting tool : Computer in which this tool is installed
- LAN cable : PAC-YG00FA: LAN cable for connection to the front of G-50A (as necessary)
- PLC setting tool : GX Developer (Mitsubishi Electric) software
  (including the dedicated RS-232-C cable)
  *PLC…. Must be installed at site with system using PLC.
- Table setting tool : Table setting tool for PLC for general equipment software (required only when an interlocking control is performed)
- Screwdriver kit
- Other usual maintenance tools
- Maintenance tool: needed when using interlock control function of DIDO controller and AI controller.

4.3 Step 1: Test operation from central controller AG-150A/G-50A

Perform only the test operation of the air-conditioning system of the central controller AG-150A/G-50A.

(1) Preliminary check

Check that the test operation of the air conditioner has been completed.
Check that the central controller AG-150A/G-50A is set to Group and Interlock.
(The initial setting is executable using the initial setting Web or the AG-150A/G-50A.)
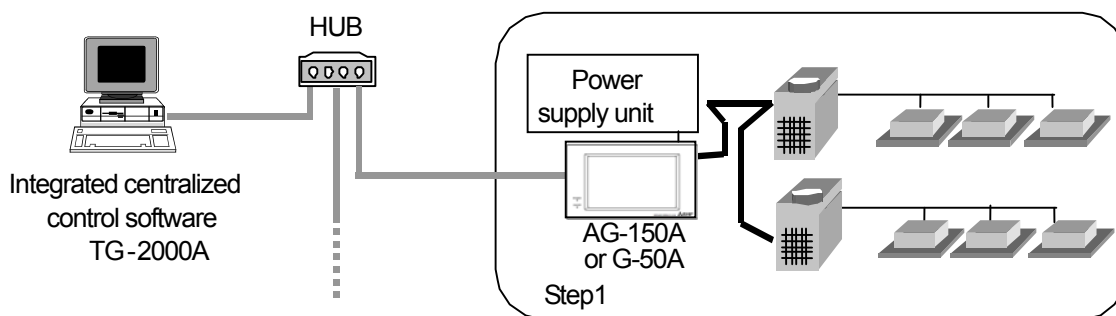
(2) Test operation from central controller AG-150A/G-50A

After supplying power to the central controller AG-150A/G-50A and all air conditioners, perform the test operation from the central controller AG-150A/G-50A and check the operation state of each unit.

* For the test operation method, refer to the installation manual for the air conditioner or the central controller AG-150A/G-50A.

4.4 Step 2 Connecting and installing the PLC

(1) Preliminary check

Check that the PLC has been installed and its power wired, and that the pulse wiring to the watt hour meter to the wiring to the general equipment has been completed.

> Note:
> - Refer to the installation manual or instruction manual enclosed with the PLC for details on setting and operating the PLC.
>
> Maintenance Tip:
> - Before wiring to the general device or confirming the connection, always notify the controller or work supervisor of the destination device, and request that person to witness the work.

(2) Installing the electric amount count software or PLC for general equipment software or PLC for demand input

Format the PLC memory, and install the electric amount count software or PLC for general equipment software or PLC for demand input software to count the power rate pulses with the PLC or to use the general control or peak cut functions.

> Note:
> • Refer to the installation manuals enclosed with the electric amount count software or PLC for general equipment software or PLC for demand input software.

4.5 Step 3: Initial setting of integrated centralized control software TG-2000A

(1) Set-up of integrated centralized control software TG-2000A

Make preparations to allow the computer to be operative in order to install the integrated centralized control software TG-2000A. After performing the set-up preparations, set up the integrated centralized control software TG-2000A.

> Note:
> • For the set-up procedure, refer to Chapter 5.
> • For safety, check the installation state/connection before turning the power ON.

(2) Check the AG-150A/G-50A IP address and computer (which uses the integrated centralized control software)

Check the AG-150A/G-50A IP address. Check the IP address used for the integrated centralized control software at the same time. Normally, set the sub-net to "255.255.255.0".

Set the integrated centralized control software's IP address, etc., **using the Windows(OS) network setting function**.

For a LAN dedicated to the AG-150A/G-50A system, it is recommended to set the IP address within the following range.

Models		IP address range
AG-150A/G-50A main unit		[192.168.1.1] to [192.168.1.40]
Computer for browser		[192.168.1.101] to [192.168.1.149]
Computer for integrated centralized control software		[192.168.1.150]
PLC		[192.168.1.151] to [192.168.1.200]
	PLC for electric amount count software	[192.168.1.151] to [192.168.1.155]
	PLC for general equipment PLC software	[192.168.1.171] to [192.168.1.190]
	PLC for demand input PLC software	[192.168.1.191] to [192.168.1.194]
Computer of initial setting tool		[192.168.1.201]

* To connect to the existing LAN, set the IP address and sub-net mask set by the LAN manager.

(3) LAN connection confirmation

Check that the LAN cable is connected to the AG-150A/G-50A, computer (using integrated software), and hub, and that power is supplied to the hub.

(4) Initial setting of integrated centralized control software

Start the integrated centralized control software TG-2000A to execute the initial setting.

> Note:
> • For the initial setting method of the integrated centralized control software TG-2000A, refer to Chapters 6 to 8.
> • In a system using a PLC, initialize the PLC with the integrated centralized control software TG-2000A so that the PLC can be used.

4.6 Step 4: Test operation from integrated centralized control software TG-2000A

Perform the test operation from the integrated centralized control software TG-2000A to check the operation state and monitor display of the air conditioner.

For the operation procedure, refer to the Instruction Manual (Management).

> Note:
> - For confirmation in the test operation, use the checklist shown in Chapter 11.
> - Perform the normal operation from the integrated centralized control software TG-2000A to execute the test operation/confirmation. (The test operation function is not included in the start/stop function.)
>
> Maintenance Tip
> - When carrying out test run with the general equipment, so not start and stop the site devices without approval from the device's controller or work supervisor. Ask that person to witness the test run.

5.1 Pre-installation Steps

The preparation required for setting up the integrated centralized control software TG-2000A is explained in this section.

5.1.1 Checking the AG-150A version and the G-50A version

1) Checking the AG-150A version

Check the AG-150A version with one of the following methods.

　　Method 1 : Using the initialization tool

　　　　The version can be monitored from the Basic Setting window.

　　Method 2 : Using the AG-150A main unit

　　　　The version can be found at the right bottom corner of the Login screen that appears when ⚒ is pressed.

2) Checking the G-50A version

Check the G-50A version with one of the following methods.

　　Method 1 : Using the initialization tool

　　　　The version can be monitored from the Basic Setting window.

　　Method 2 : Using the G-50A main unit

　　　　Press the [↑][↓] buttons for two seconds or longer to open the Initialization Mode Menu window. Then, press the [↵] button to open the second menu window. The version will appear at the lower right.

*　If the integrated centralized control software TG-2000A has already been installed, the AG-150A version and the G-50A version can be confirmed with section 8.6.3.

> Note:
> ・ In using TG-2000A and AG-150A or G-50A in combination, it is recommended that the latest versions of the software be used.
> **(Reference) As of Oct. 2008, the combination of TG-2000A Ver.5.50 and G-50A Ver.3.22 is recommended.**
> ・ When using Energy saving and Peak cut function via G-50A Ver.3.20 or later, use TG-2000A Ver. 5.10 or later.

Check the central controller G-50A version. Update if it is not the applicable version.

		Applicable G-50A version		Remarks
		Use	**Do not use**	
1	Power apportion billing function	Ver.2.51 or later		Functions are available with Ver. 2.21.
2	Energy saving/peak cut function Set temperature range limit function			Functions are available with Ver. 2.50.
3	Auto change function	Ver.2.60 or later		Functions are available with Ver 2.60.
4	Night mode function			
5	IC I/O signal function	Ver.2.70 or later		Functions are available with Ver 2.70.
6	Expansion of set temperature range limit function	Ver.2.71 or later		Functions are available with Ver 2.71.
7	Billing function of A/K control units			Functions are available with Ver 2.80.
8	Initial setting Web	Ver.2.80 or later		Functions are available with Ver 2.80.
9	Energy save settings for the A-control Inverter Slim outdoor units	Ver.2.90 or later		Functions are available with Ver 2.90.
10	1°F temperature setting function	Ver.3.00 or later		Functions are available with Ver 3.00.
11	DIDO, AI and PI controller function	Ver.3.20 or later		Functions are available with Ver 3.20.

Updating the AG-150A

Monitor the system for the target AG-150A.

Step	Item	Details
1	Connect the LAN cable	Connect the AG-150A and computer with the LAN.
2	Set the Update Program CD for AG-150A	Insert the Update Program CD (for AG-150A) in the computer's CD-ROM drive.
3	Start the Monitor tool	Update screen will be displayed automatically.
4	Input the IP address, and start the Monitor	Input the IP address on the Monitor window, and then press the [Start Monitor] button.
5	Complete the Monitor	The Monitor is completed when the progress graph reaches 100%.

Updating the G-50A

Monitor the system for the target G-50A.

Step	Item	Details
1	Connect the LAN cable	Connect the G-50A and computer with the LAN.
2	Set the Update Program CD for G-50A	Insert the Update Program CD (for G-50A) in the computer's CD-ROM drive.
3	Start the Monitor tool	Update screen will be displayed automatically.
4	Input the IP address, and start the Monitor	Input the IP address on the Monitor window, and then press the [Start Monitor] button.
5	Complete the Monitor	The Monitor is completed when the progress graph reaches 100%.

Note:
- If a communication error occurs while updating the system, the AG-150A/G-50A will standby in the Monitor mode for ten minutes. Click on the [Start Monitor] button again to restart the Monitor.
  The license for the "Web monitor" must be registered from the AG-150A unit.
- Take the following measures if update fails and the system does not startup properly.
  [G-50A]
    Turn the power to the G-50A back on with buttons [1] and [0] on the G-50A unit being held down, and keep them held down for 10 more seconds. G-50A will start up in the Update mode. Follow the instructions on the screen and try performing an update again.
  [GB-50A]
    Turn SW 1-1 and 1-2 on the GB-50A unit, and then turn the power on. G-50A will start up in the Update mode. Follow the instructions on the screen and try performing an update again.
    After the update, turn the service switch SW1 to OFF, and reboot the unit.

[Operation environment]

A computer containing the integrated centralized control software TG-2000A can be used, but when updating the system with a different computer, make sure that the computer satisfies the following operation environment.

Table AG-150A/G-50A Monitor computer operation environment

Item	Details
OS	Windows Vista/XP/2000
CPU	Pentium® 133MHz or faster (The required CPU speed depends on Windows (OS).)
Memory	64Mbyte or more (The required memory size depends on Windows (OS).)
Built-in LAN port or LAN card	One
Others	CD-ROM drive (required for installation), mouse or other pointing device

5.1.2 Preparing for TG-2000A setup

Preparing for installation

Before installing the TG-2000A application, do the following checks and preparatory steps.

Note:
- The AG-150A- and G-50A-compatible TG-2000A must be used to Ver. 5.5* or later. These versions of the TG-2000A run on Windows Vista or Windows XP.
- To use the functions supported by older versions of G-50A-compatible TG-2000A, use TG-2000A Ver. 5.1* This version runs on Windows XP or Windows 2000.

Steps	Action	Details	How to
1	Check the OS	Check the OS Service Pack version. • Windows Vista® Business: Service Pack 1 • Windows® XP Professional: Service Pack 3 • Windows® 2000 Professional: Service Pack 4 *Only English version *Use TG-2000A Ver.5.1* for Windows® 2000 Professional.	* Change if the OS differs from the applicable OS.
2	Check the memory	Check the requirement of the memory capacity for OS used. ・Windows Vista : 1GB or more ・Windows XP/2000 : 512MB or more	* Install expansion memory if required.
3	Check the HDD free space	Check that there is at least 2GB of free space on the C drive. (OS already set up) *Refer to section 2.1 when using the trend or the wide area function.	* Refer to the Windows instruction manual for more details.
4	Printer settings *1	Install the printer driver and check that printing is possible.	* For details, refer to the attached instruction manual.
5	Set the date and time	In the Windows Control Panel, select "Date and Time" and set the date, time and region *Set the region to English. *Use "." for a decimal point, and "," for a delimiter.	* For details, refer to the Windows users manual.
6	Screen size and color settings	At the "display" in the Windows Control Panel, set the screen size to 1024 × 768 or larger and the color to 65536 colors (High Color (16-bit)) or more.	* For details, refer to the Windows users manual.
7	Automatic login settings	Check that the Auto log-in is set. *2	* For the setting check procedure, see Appendix 2 Auto Log-in Check Procedure.
8	Network settings	Check that the network settings have been performed (even if the adapter is not connected).	* For details, refer to the Windows users manual.
9	Check the power option settings	Check that the settings for the "System standby" and "System hibernates" are set to "OFF" in the power option's "Power settings".	* For details, refer to the Windows users manual.

*1 Check when using the printer.
*2 Auto log-in sets the automatic start-up without entering the log-in name or password at the Windows(OS) start-up.
*3 Set the integrated centralized control software TG-2000A so it can be used 24-hours.

Note:
- Unless the Auto log-in is set up, TG-2000A will not start up when the PC is rebooted after the TG-2000A has restarted itself. Be sure to set up the Auto log-in.
- Do not change the computer name after the TG-2000A has been setup. TG-2000A will not run properly if changed, and may require the Windows(OS) to be installed again.

5.2　TG-2000A Setup (TG-2000A Ver.5.5* or later)

Before Setting Up TG-2000A (Windows Vista)

<u>Before setting up TG-2000A on a computer running Windows Vista operating system, User Account Control (UAC) and Windows Aero need to be disabled.</u>
These functions are not available on computers running on Windows XP and do not need to be set.

Initial settings	User Account Control (UAC)	Windows Aero
Windows Vista Business	ON　→　OFF	Enabled　→　Disabled
Windows XP Professional	(None)	(None)

Turning off the User Account Control (UAC) allows the TG-2000A to start up automatically.
Please be sure to set this setting to "OFF" to make sure that the TG-2000A is started up automatically and to avoid other problems.
Disabling Windows Aero minimizes memory use.
If this setting is left enabled, the program uses the computer's memory to display the screen. It is recommended that this setting be disabled.
Semi-transparent and 3-dimensional display functions will also be disabled when Windows Aero is disabled.
This function is not available on computers running on Windows Vista Home Basic and does not need to be set.

Steps for Disabling the User Account Control (UAC)

1) Open the settings screen.
　　Select [User Accounts] in the Control Panel Home from the Control Panel.
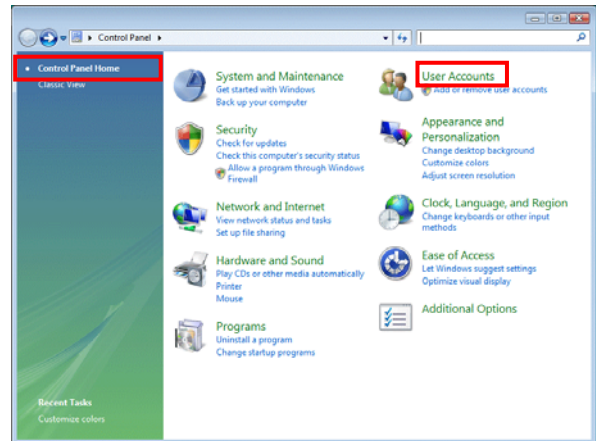
　　Select [User Accounts] on the [User Accounts] screen.
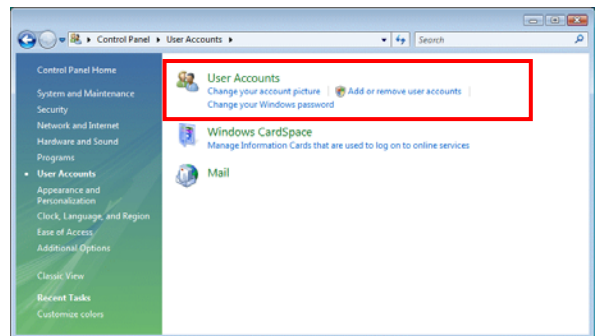
　　Select [Turn User Account Control on or off] on the [User Accounts] screen under [User Accounts]

19
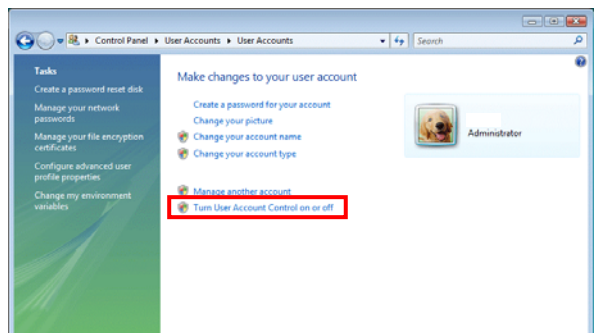
2) Disable the setting.

Uncheck the box next to 「Use User Account Control (UAC) to help protect your computer」 and click [OK].

After click [OK], restart the computer.

Remove the check.
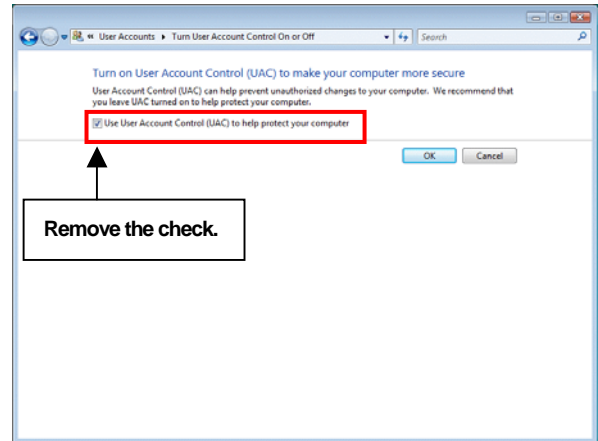
Steps for Disabling Windows Aero

1) Open the settings screen.

Select [Change the color scheme] (or [Customize colors]) in the Control Panel Home from the Control Panel.
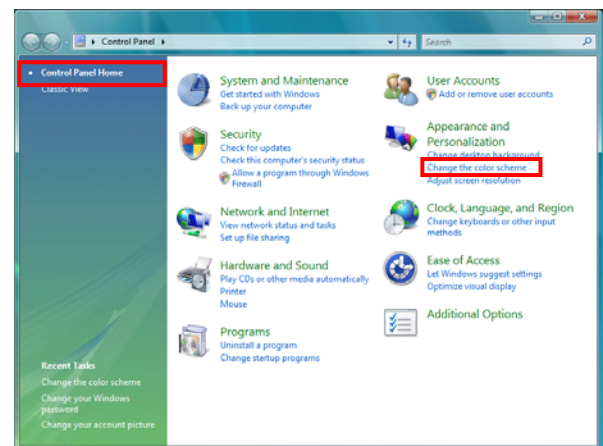
Select [Open classic appearance properties for more color options] on the [Window color and Appearance] screen.
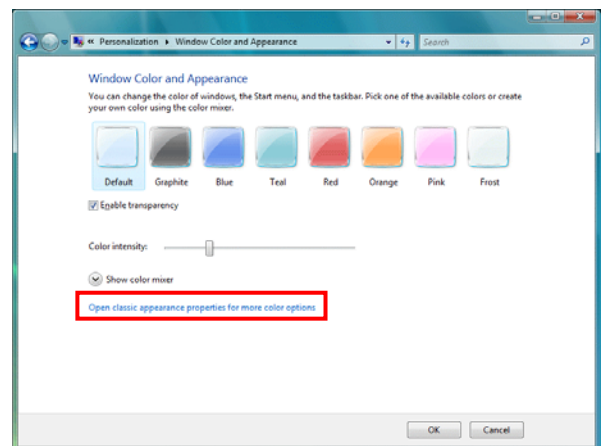
2) Disable the setting.

Select [Windows Vista Basic] on the 「Appearance Setting」 screen, and click [Apply].

3) Click [OK] to finish.

20
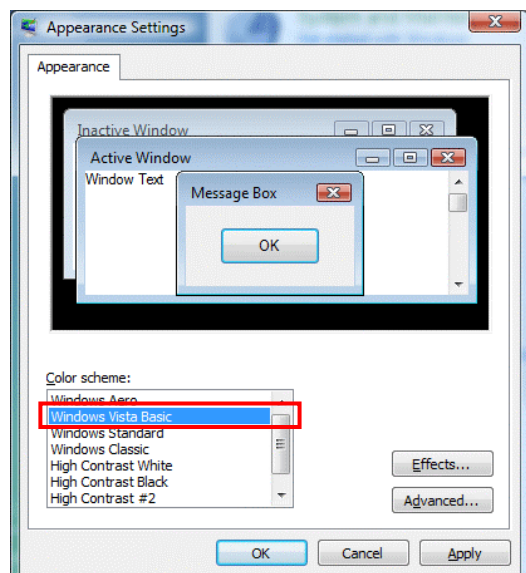
5.2.1 Setup (TG-2000A Ver.5.5* or later)

This TG-2000A can be setup with the following two methods.
Method 1) New setup   : Refer to section 5.2.2
Method 2) Version upgrade : Refer to section 5.2.3

The following shows the TG-2000A setup disk (CD-ROM) folder configuration and files. However, it only describes the files to be run.

♦ New setup
TG-2000A Ver.5.5* or later
[CD-ROM drive] ¥WindowsVista¥Setup¥setup.exe

♦ Version upgrade
TG-2000A Ver.5.5* or later
[CD-ROM drive] ¥WindowsVista¥Setup¥setup.exe   (The same setup file as "New setup")

[Reference] CD-ROM directory structure
¥Manual	: Operation Manual, Simple operation manual (PDF file)
¥Tool	: Air-conditioning charge calculation support tool (ChargeCalc.xls, AirConCharge. xls) and trend graph creation tool (TrendGraph.xls) Test run check list creation tool (TestRunCheckSheet.xls)
¥WindowsVista¥Setup	: Set-up folder
¥WindowsXP	: Set-up folder,Version-up folder
Readme.txt	: Directory structure and setup precautions of this CD-ROM

Note
・The same file is used for the new setup and version upgrade for TG-2000A Ver. 5.5* or later.
・Refer to section 5.3. "TG-2000A Setup (TG-2000A Ver.5.1*)" for how to set up the TG-2000A Ver.5.1*.

Note
・Check that your computer meets the system requirements that are listed in "2.1 Requirements (system recommendations)" before setting up or updating the system.

・**If your computer is running on Windows Vista, disable the User Account Control (UAC) and Windows Aero.**
Refer to "Before Setting Up TG-2000A (Windows Vista)"above for how to disable these functions. If your computer is running on Windows XP, it is not necessary to take this step.

・If an antivirus software is installed on your computer, TG-2000A may be detected as a virus and the setup procedures may not be completed properly. Add the TG-2000A's EXE file to the "Ignore" list.

5.2.2 Running TG-2000A Setup (New setup) (TG-2000A Ver.5.5* or later)

The TG-2000A setup is performed in four stages:

Step 1) Microsoft Data Access Components 6.0 (Windows Vista) or
Microsoft Data Access Components 2.8 Service Pack 1 (Windows XP)
(Abbreviated as MDAC hereafter)

Step 2) .NET Framework 2.0

Step 3) SQL Server 2005 Express Edition Service Pack 2 (Referred to as SQL Server 2005 hereafter)

Step 4) TG-2000A setup　　　　　(+ restart computer)

> Note:
> * Be sure to log-in to Windows, using the Auto log-in name and password before executing the set-up.
>   (It is necessary to execute the log-in with a log-in name having administrator rights.)
> * Disable User Account Control (UAC) and Windows Aero on Windows Vista. If these are enabled, TG-2000A will not be set up properly.

> Caution:
> * Always quit all other programs (including resident programs) before installing TG-2000A.

1) Start the Installer.

Double-click the **¥WindowsVista¥Setup¥setup.exe** file on the CD-ROM.

The setup screen for MDAC, .NET Framework 2.0, and SQL Server 2005 will appear.

* If they are already installed, the screen will jump to the TG-2000A installation screen.

2) Install MDAC, .NET Framework 2.0, and SQL Server 2005.

Follow the instructions on the screen and click [Install].

They will be automatically installed one by one.

When the setup procedures for all programs are complete, the screen will jump to the TG-2000A setup screen.

*Click the [Cancel] button to cancel setup.

*If MDAC and .NET Framework 2.0 are already installed, only SQL Server 2005 will be installed.
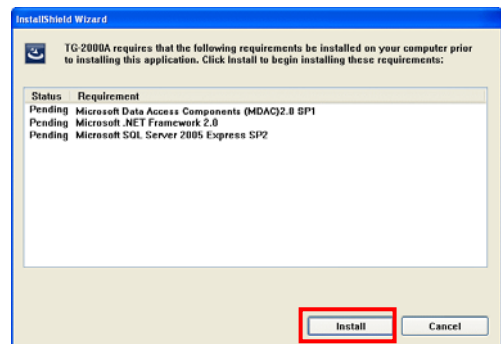
3) Install the TG-2000A.

Click the [Next] button as indicated on the screen.
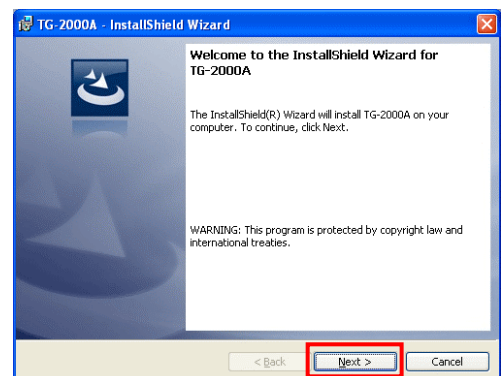
4) User must read and accept the license agreement to use this program.

Read and check the radio button next to [I accept the terms in the license Agreement], and then click [NEXT].

22
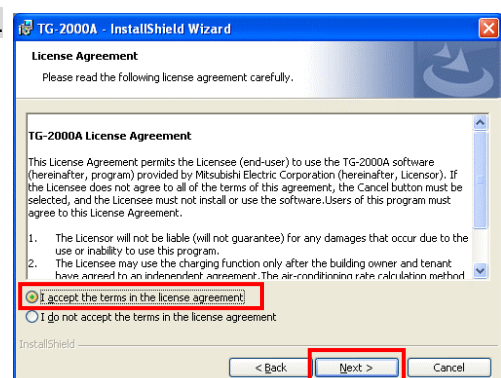
5) Select the installation mode.
Select [Standard] or [Wide area] by checking the radio button, and click [Next].

Standard : The mode which connects one site by dedicated lines (LAN etc.) by TG-2000A, and carries out monitor/operation.
Wide area : The mode which carries out monitor/operation of two or more sites by TG-2000A.
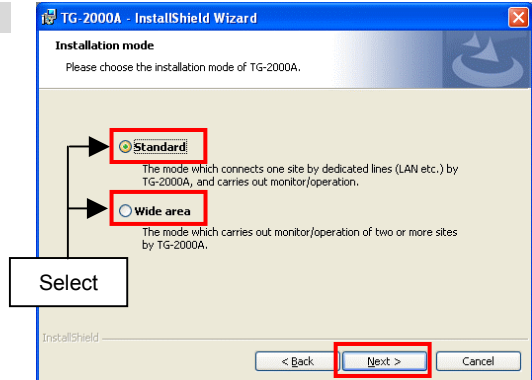
6) Make the final confirmation.
Click [Install] to begin installation.
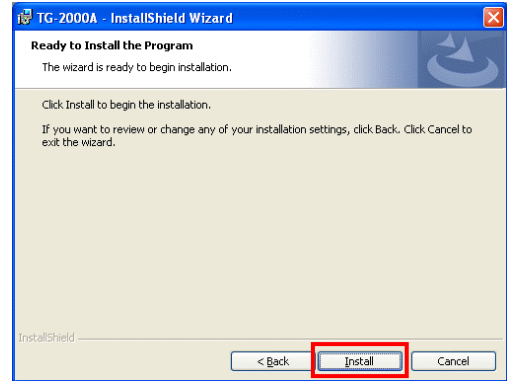
7) When the installation is complete, the screen on the right appears.
Click [Finish] to complete the installation process.
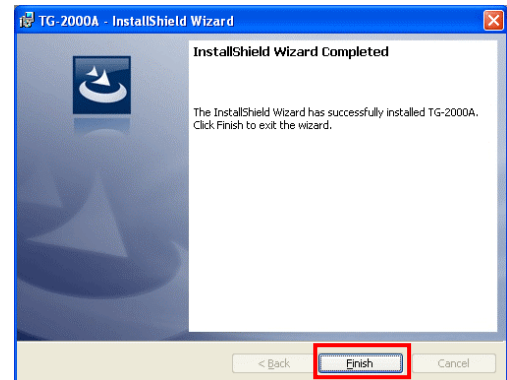
8) Restart the computer.

After the installation is completed, restart the computer. When the installation is completed, the program is registered in the start menu. And it automatically run from the next time when the computer is started.
Store the CD in a safe place.

9) Setting up the Firewall at TG-2000A startup
When starting up TG-2000A, a popup window will appear, asking if you want to block the program.
Click [Unblock] to exclude the program from the Firewall.

*If the popup window becomes hidden behind the TG-2000A window, press [Alt] and [Tab] simultaneously to bring up the window on the right, and select Windows Firewall.

Windows Security Alert

Note:
- **Be sure to restart the computer** after installing TG-2000A.
- Mail tool is installed in both standard and wide area mode.
- Launch TG-2000A in the "Wide area" mode from the "Site change tool."
  Refer to "Chapter 4 The Usage of the Site Change Tool" in the manual (Wide area) for information on "Site change tool."

23

5.2.3 Upgrading the TG-2000A version (TG-2000A Ver.5.5* or later)
The TG-2000A version is upgraded with the following four steps.

Step 1) TG-2000A quit
Step 2) TG-2000A uninstall
Step 3) MSDE uninstall   (+ restart computer)
Step 4) TG-2000A version upgrade   (+ restart computer)

Maintenance Tip:
- **These four steps must be carried out in the above order to upgrade the version.**
  The TG-2000A will not operate properly if the above order is not followed.
- **The database should be backed up beforehand to prevent trouble. (Refer to Appendix 5.)**
- Refer to sections 7.3, 5.2.4 and 5.3.4 for details on steps 1 and 2.
- Quit all applications (including resident programs) other than MSSQL Server.

Step 1) TG-2000A quit
1) Quit TG-2000A
   Open the initial screen from the Management screen, and select [File] - [End] from the menu bar.
   A Quit confirmation window opens, so select the [OK] button.
   The TG-2000A program closes.

   * The TG-2000A program must be quit before the version is upgraded.
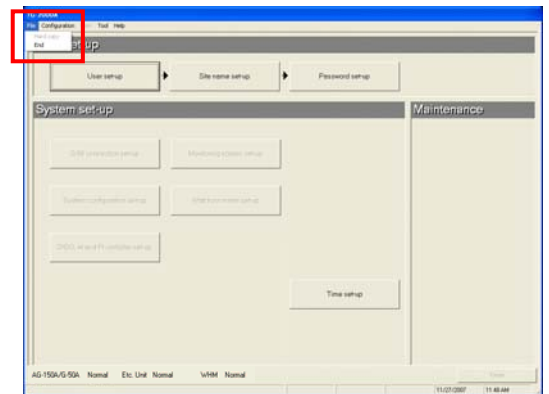
Quitting method

Step 2) TG-2000A uninstall
1) Open [Add/Remove Program] or [Uninstall a program] in the Control Panel.
   Windows XP: Open [Add/Remove Program] : in the Control Panel.
   Windows Vista: Open [Uninstall a program] (or [Programs and Features]) in the Control Panel.

2) Uninstall the TG-2000A.
   Select the "TG-2000A" program.
   Windows XP: Click [Change/Remove] to delete the program.
   Windows Vista: Click [Uninstall] to remove the program.

   If the window at right appears during uninstallation, click [Ignore] to procede.

Step 3) MSDE uninstall
   When upgrading an older version of TG-2000A (Ver.5.20* or later), it is not necessary to uninstall the MSDE.
1) Start the SQL Server Service Manager
   Start the "SQL Server Service Manager" by right-clicking the MSDE icon on the taskbar.

MSDE icon

2) Stop all service
   To stop all service, make your selection at the Service field and click the [Stop] button.

3) End the SQL Server Service Manager
   The "SQL Server Service Manager" window closes.

4) Close the MSDE icon
   Right-click the MSDE icon on the taskbar and select [Exit].
   The MSDE icon is removed from the taskbar.

5) Start "Add/Remove Programs".
     Start by clicking on the Control Panel's Add/Remove Programs.

6) Choose "MSDE", and click the [Change/Remove] button.
     Select "MSDE" from the displayed programs, and click the
     [Change/Remove] button.
     Uninstallation of the MSDE program begins.

Note:
   • This uninstall cannot delete some folders and files. (Ex: C:¥Mssql7)
   • Please be sure to uninstall the MSDE.
     TG-2000A will not function properly if SQL Server 2005 is installed without first uninstalling the MSDE.

7) "Add/Remove Programs" ending
     When program uninstallation ends, "Add/Remove Programs" ends.

8) Restart the computer.
     Since a program has been uninstalled, restart Windows.

Step 4) TG-2000A version upgrade

1) Starting SetupTG.exe
     Execute **¥WindowsVista¥Setup¥Setup.exe** from the CD- ROM.

2) Install TG-2000A.
     Click [Next] as indicated on the screen.
     **Install TG-2000A by following the procedures as listed in "5.2.2 Running TG-2000A Setup (New
     setup) (TG-2000A Ver.5.5* or later)."**

3) Restart the computer.
     * When installation is complete, this program appears in the Startup Menu, and it will be automatically launched at startup.
       Save the CD-ROM for future use.

When starting up TG-2000A, a popup window will appear,
asking if you want to block the program.
Click [Unblock] to exclude the program from the Firewall.

  *If the program has already been excluded from the Firewall at the previous
   setup, this window will not appear.

  *If the popup window becomes hidden behind the TG-2000A window, press
   [Alt] and [Tab] simultaneously to bring up the window on the right,
   and select Windows Firewall.

Windows Security Alert

Note:
   • **Be sure to restart the computer** after installing the TG-2000A.
   • Check all of the settings, such as the user settings and charging system configuration, etc.,
     on the initial screen, and set if necessary.

25

5.2.4 TG-2000A Uninstall (TG-2000A Ver.5.5* or later)
This section describes how to uninstall an installed "SQL Server 2005" and "TG-2000A" program.

> Note:
> • To uninstall TG-2000A Ver.5.1* or earlier, follow the uninstallation instructions in the Operating Manual that came with the TG-2000A.

Step 1) TG-2000A quit
1) Quit TG-2000A
    Open the initial screen from the Management screen, and select [File] - [End] from the menu bar.
    A Quit confirmation window opens, so select the [OK] button.
    The TG-2000A program closes.
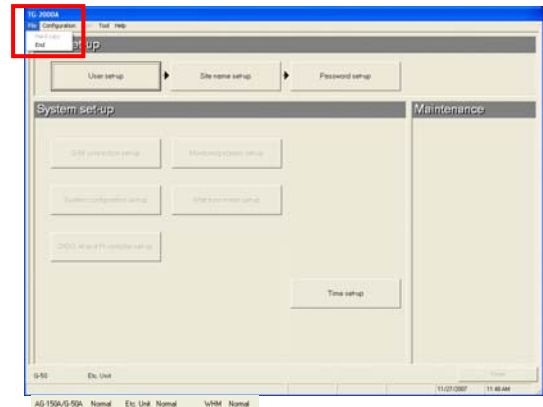
Quitting method

Step 2) Uninstall TG-2000A and SQL server 2005.
1) Open [Uninstall a program] or [Add/Remove Program] in the control panel.
    Windows Vista: Open [Uninstall a program] (or [Programs and Features]) in the Control Panel.
    Windows XP: Open [Add/Remove Program] in the Control Panel.

2) Uninstall TG-2000A.
    Select the "TG-2000A" program.
    Windows Vista: Click [Uninstall] to delete the program.
    Windows XP: Click [Change/Remove] to delete the program.

    If the window at right appears during uninstallation, click [Ignore] to procede.

3) Uninstall SQL Server 2005.
    Select the "Microsoft SQL Server 2005" program.
    Windows Vista: Click [Uninstall] to delete the program.
    Windows XP: Click [Change/Remove] to delete the program.

    Select the components to remove.
   Click on the radio button next to "TG2000A : Database Engine" under "Select an instance" in the right screen, and then click [Next].
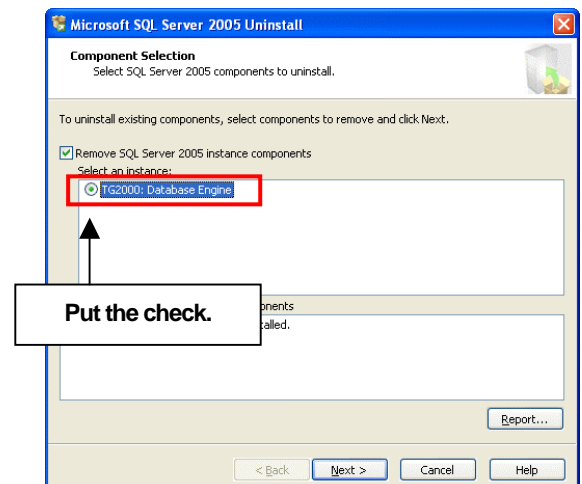
Confirm the setting.
Confirm that the correct program is selected, and click [Finish].
Uninstallation will begin and the window will close automatically
when uninstallation is complete.
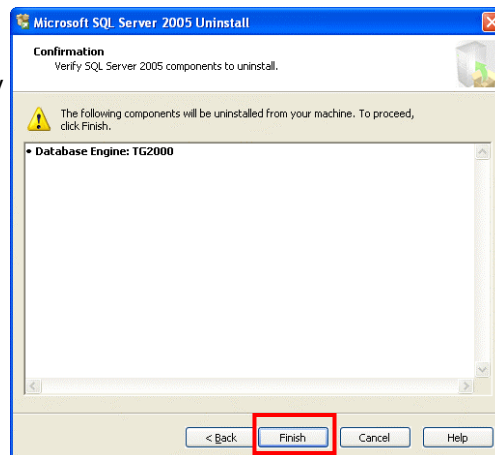
If the window shown on the right appears, click
[Ignore] and proceed.
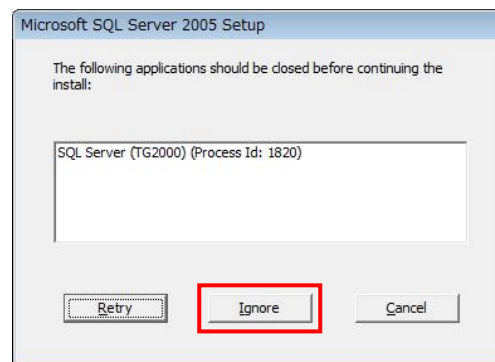
4) Uninstall Microsoft SQL Server Native Client.
Select Microsoft SQL Server Native Client, and click [Uninstall].

Note:
・There are some folders and files that cannot be uninstalled by taking the above steps, but that is normal.
・When SQL Server 2005 is used, it is not necessary to uninstall the program.

Important
・When uninstalling SQL Server 2005, only delete the files that are specified.
The program may become un-uninstallable if other files are deleted.

5) "Add/Remove Programs" ending
When program uninstallation ends, "Add/Remove Programs" ends.

5.2.5 Adding files to the ignore list on the anti-virus software (TG-2000A Ver.5.5* or later)

TG-2000A may be detected as a virus by the anti-virus program on the computer, if one is installed. When this happens, TG-2000A's EXE files need to be added to the ignore list to exclude them from being scanned.

After installing TG-2000A and the anti-virus program, add <u>the following TG-2000A's EXE files to the ignore list</u> for the Firewall or AutoProtect settings on the anti-virus software.

Folder	Files to be added to the ignore list	
C:¥TG2000	TG2000.exe	
	TGSiteTool.exe (*1)	(*1) When "Wide area" is set up
	GMailSrv.exe	
	DbBkupTool.exe	
C:¥TG2000¥Lib¥Exe	G50Srv.exe	
	GChargeSrv.exe	
	GMultiSrv.exe	
	GTrendSrv.exe	
	GWHMSrv.exe	
	GcoolSrv.exe	Total : 10 files

When installing an anti-virus software, it may ask the user to enter the names of the files to be included in the ignore list. Follow the instructions that appear on the screen to add the above EXE files to the list.

How to add files to the ignore list depends on the anti-virus software. Refer to the Instructions Manual that comes with the anti-virus software.

Important
・ Where the EXE files are installed depends on the version of TG-2000A (Ver. 5.5* or later vs. Ver. 5.1*). Refer to section 5.3.5 "Adding files to the ignore list on the anti-virus software (TG-2000A Ver. 5.1*)" when adding the EXE files of TG-2000A Ver.5.1* to the ignore list.

5.3   TG-2000A Setup (TG-2000A Ver.5.1*)

5.3.1   Setup (TG-2000A Ver.5.1*)
This TG-2000A can be setup with the following two methods.
Method 1) New setup　　　: Refer to section 5.3.2
Method 2) Version upgrade : Refer to section 5.3.3

The following shows the TG-2000A setup disk (CD-ROM) folder configuration and files. However, it only describes the files to be run.

♦   <u>New setup</u>
[CD-ROM drive] ¥WindowsXP ¥Setup¥Step1¥SETUP.exe
　　　　　　　　　　　　　¥Step2¥DbSetup.bat
　　　　　　　　　　　　　¥Step3¥SetupTG.exe

♦   <u>Version upgrade</u>
[CD-ROM drive] ¥WindowsXP ¥Verup¥DbVerup¥DbUpdata.bat
　　　　　　　　　　　　　　　¥TGVerup¥SetupTG.exe

[Reference] CD-ROM directory structure
　　¥Manual　　　　　　　　　: Operation Manual, Simple operation manual (PDF file)
　　¥Tool　　　　　　　　　　: Air-conditioning charge calculation support tool (ChargeCalc.xls,
　　　　　　　　　　　　　　　　AirConCharge.xls) and trend graph creation tool (TrendGraph.xls)
　　　　　　　　　　　　　　　　Test run check list creation tool (TestRunCheckSheet.xls)
　　¥WindowsVista¥Setup　　: Set-up folder
　　<u>¥WindowsXP</u>　　　　　　　: <u>Set-up folder,Version-up folder</u>
　　Readme.txt　　　　　　　: Directory structure and setup precautions of this CD-ROM

Important
・Refer to section 5.2 "TG-2000A Setup (TG-2000A Ver.5.5* or later)" for how to set up the TG-2000A Ver.5.5* or later.

Note
・Check that your computer meets the system requirements that are listed in "2.1 Requirements (system recommendations)" before setting up or updating the system.
・Data that are recorded on TG-2000A Ver.5.20 or Ver.5.5* or later cannot be transferred to TG-2000A Ver. 5.1*. Data on older versions cannot be transferred to newer versions of TG-2000A.
・If an antivirus software is installed on your computer, TG-2000A may be detected as a virus and the setup procedures may not be completed properly. Add the TG-2000A's EXE file to the "Ignore" list.

5.3.2 Running TG-2000A Setup (New setup) (TG-2000A Ver.5.1*)

The TG-2000A setup is performed in three stages:

Step 1) MSDE setup   (+ auto restart computer)
Step 2) Database setup
Step 3) TG-2000A setup   (+ restart computer)

Note:
- **Perform the 3 setup steps sequentially**. Otherwise, the TG-2000A will not operate properly.
- Be sure to log-in to Windows, using the Auto log-in name and password before executing the set-up.
  (It is necessary to execute the log-in with a log-in name having administrator rights.)

Caution:
- Always quit all other programs (including resident programs) before installing TG-2000A.

Step 1) MSDE setup

Run the **¥WindowsXP¥Setup¥Step1¥SETUP.exe**.
Check the confirmation message, and click the [OK] button.
* To cancel the setup, click the [Cancel] button.

Time required for setup: Approx. 2-3 min.

The screen shown on the right appears when the setup
is completed. Click the [OK] button. The computer is
automatically reset, and will be restarted.
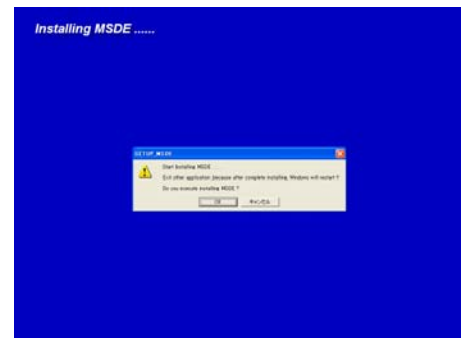
Note:
- Restart the computer after completing the MSDE set-up.
  Otherwise, Step 2 which follows may not be able to be set
  up properly.
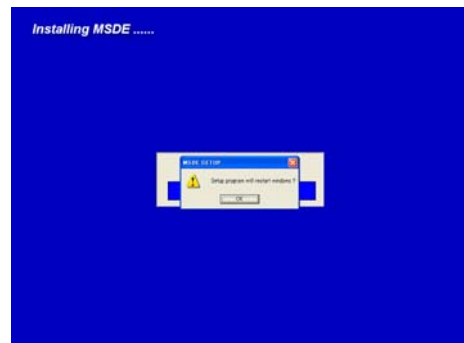
Step 2) Database setup

Run the **¥WindowsXP ¥Setup¥Step2¥DbSetup.bat**.
A DOS window will open and the close **10 seconds**
later when the process has finished.
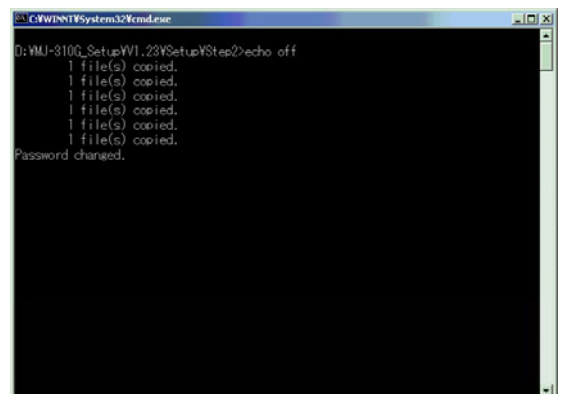
Step 3) TG-2000A setup
Run the setup program for TG-2000A. Perform the setup in accordance with the instructions on the screen.

(1) Starting the setup program

1) Starting SetupTG.exe
Use Windows Start-Run to execute Run the
¥WindowsXP ¥Setup¥Step3¥SetupTG.exe in the
root directory of the Setup CD.
The setup start confirmation window appears. Read
and check the cautions which appear on the screen.
2) Check the displayed items and click the [Next] button.
If there is no problem with the cautions, click the [Next]
button to continue on to the next screen.
  * Click the [Cancel] button to stop the setup.
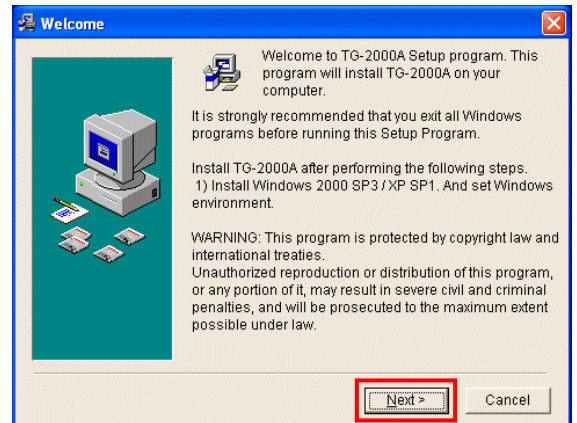
(2) Read the license agreement

1) Read the license agreement and click the [Next] button.
The license agreement screens will be displayed one at
a time. Carefully read all of the agreement and check
that you agree with each item before selecting "It
agrees" and clicking [Next] to continue.

  * If you cannot agree with the license agreement,
    click the [Cancel] button and stop the installation of
    TG-2000A.
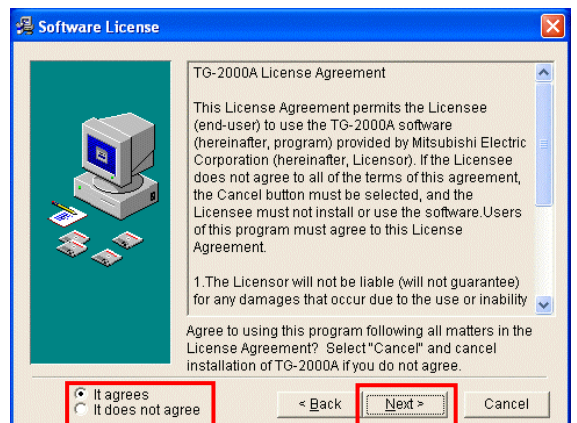
(3) Check the installation folder

1) Check the location where the program is to be installed
and click the [Next] button.
Check the location where the program is to be installed.
If the location needs to be changed, set the new
location by clicking the [Browse] button.
After checking the installation location, click the [Next]
button.

  * Click the [Cancel] button to stop the installation.
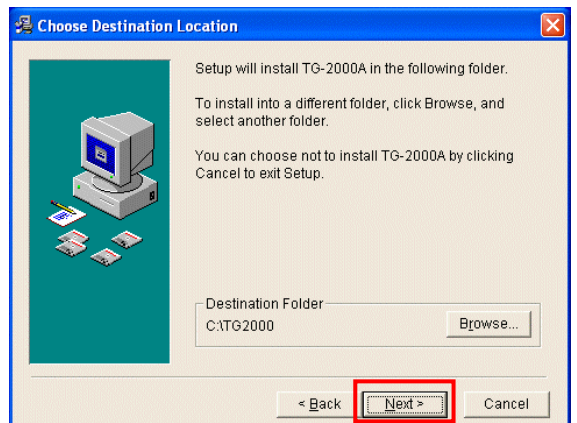
(4) Mode selection

1) Choose "Standard" or "Wide area" mode.
Choose the installation mode.
  Standard: The mode which carries out
    monitor/operation of one site
    (Same function as up to Ver.4.50)
  Wide area: The mode which carries out
    monitor/operation of two or more
    sites
    (Usable function is limited)
2) Click the [Next] button.
After choosing the mode, click the [Next] button.

31
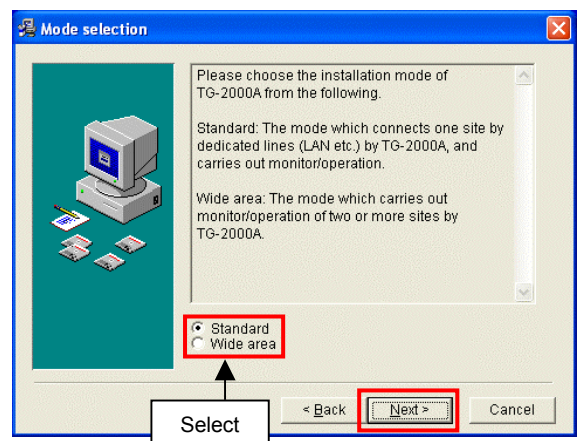
(5) Installation start confirmation

1) Confirm that you want to start the installation and select the [Next] button.
   If the [Next] button is clicked the installation will start.

   * Click the [Cancel] button to stop the installation.
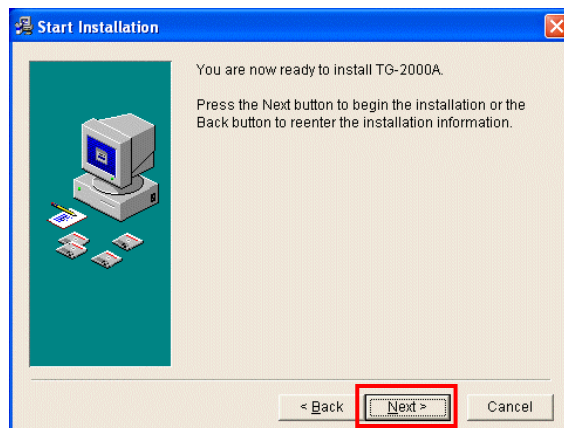
(6) TG-2000A setup completion

1) Select [Finish] button
   Click [Finish] button on installation screen.

2) After the installation is completed, restart the computer.
   When the installation is completed, the program is registered in the start menu and automatically run from the next time the computer is started.
   Store the CD is a safe place.
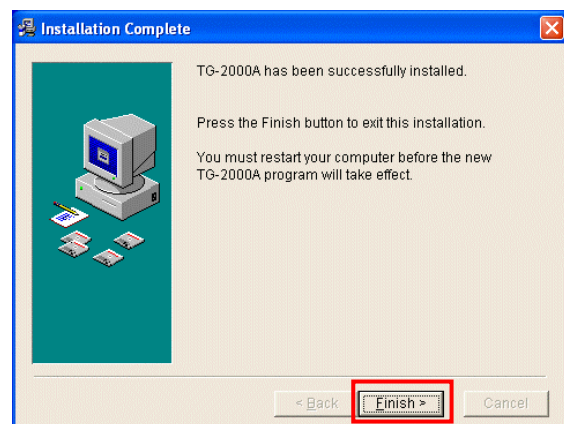
(7) Setting up the Firewall at TG-2000A startup

1) Configure the ignore list for the Firewall.
   When starting up TG-2000A, a popup window will appear, asking if you want to block the program.
   Click [Unblock] to exclude the program from the Firewall.

*If the popup window becomes hidden behind the TG-2000A window, press [Alt] and [Tab] simultaneously to bring up the window on the right, and select Windows Firewall.

Windows Security Alert

Note:
- **Be sure to restart the computer** after installing TG-2000A.
- Mail tool is installed in both standard and wide area mode.
- Launch TG-2000A in the "Wide area" mode from the "Site change tool."
  Refer to "Chapter 4 The Usage of the Site Change Tool" in the manual (Wide area) for information on "Site change tool."

5.3.3 Upgrading the TG-2000A version (TG-2000A Ver.5.1*)

The TG-2000A version is upgraded with the following four steps.

Step 1)   TG-2000A quit
Step 2)   TG-2000A uninstall   (+ restart computer)
Step 3)   Database version upgrade
Step 4)   TG-2000A version upgrade   (+ restart computer)

Maintenance Tip:
- **These four steps must be carried out in the above order to upgrade the version.**
  The TG-2000A will not operate properly if the above order is not followed.
- **The database should be backed up beforehand to prevent trouble. (Refer to Appendix 5.)**
- Refer to sections 7.3 and 5.3.4 for details on steps 1 and 2.
- Quit all applications (including resident programs) other than MSSQL Server.

Step 1) TG-2000A quit

1) Quit TG-2000A
   Open the initial screen from the Management screen, and select [File] - [Quit] from the menu bar. A Quit Confirmation window opens, so select the [OK] button. The TG-2000A program closes.

   * The TG-2000A program must be quit before the version is upgraded.
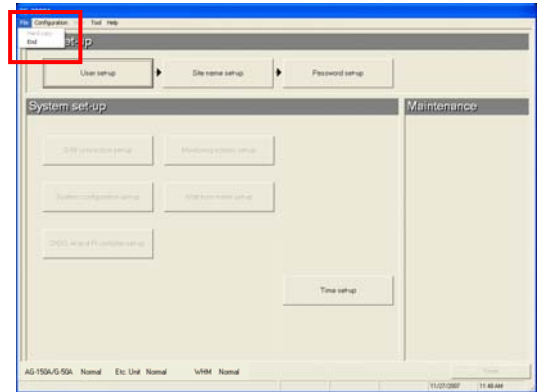
Step 2) TG-2000A uninstall

1) Start up "Add/Remove Programs".
   Start by clicking "Add/Remove Programs" in the Control Panel.

2) Uninstall TG-2000A
   Start the "TG-2000A" program, and select [Change/Remove] to delete the program.

3) Restart the computer.
   Since a program has been uninstalled, restart Windows.

Step 3) Database version upgrade

1) Start up DbUpdate.bat.
   Execute **¥WindowsXP¥Verup¥DbVerup¥DbUpdate.bat**
   from the CD- ROM.

   Required time: **Approx. 10 seconds**

   The screen closes when the version upgrade
   is completed.
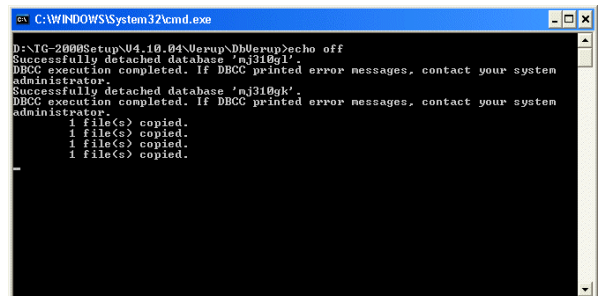
Step 4) TG-2000A version upgrade
Upgrade this TG-2000A application version. Read the on-screen instructions carefully, and proceed with the setup.   * The procedures are the same as the new setup.

> Note:
> - Refer to step 3 in section 5.3.2 for details on the TG-2000A version upgrade procedures.

(1) Start up the version upgrade setup program.
1) Starting SetupTG.exe
Execute **¥WindowsXP¥Verup¥TGVerup¥SetupTG.exe**
from the CD- ROM.

2) Check the displayed items and click the [Next] button.

(2) Read the license agreement
1) Check the displayed items and click the [Next] button.

(3) Check the installation folder
1) Check the installation folder, and then click the [Next] button.

(4) Check the start of installation
1) Check that the installation has started, and then select the [Next] button.

(5) Check the completion of TG-2000A setup
1) Select the [Finish] button.

2) Restart the computer.
When starting up TG-2000A, a popup window will appear, asking if you want to block the program.
Click [Unblock] to exclude the program from the Firewall.

   *If the program has already been excluded from the Firewall at the previous setup, this window will not appear.
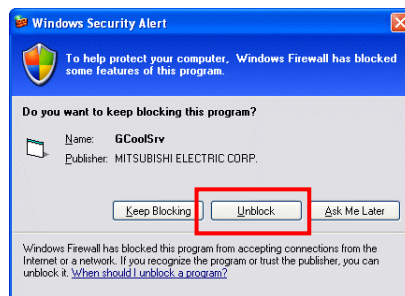
*If the popup window becomes hidden behind the TG-2000A window, press [Alt] and [Tab] simultaneously to bring up the window on the right, and select Windows Firewall.

> Note:
> - **Be sure to restart the computer** after installing the TG-2000A.
> - Check all of the settings, such as the user settings and charging system configuration, etc., on the initial screen, and set if necessary.

5.3.4 TG-2000A Uninstall (TG-2000A Ver.5.1*)

This section describes how to uninstall an installed "MSDE" and "TG-2000A" program.

Step 1) TG-2000A uninstall

1) Check to see if TG-2000A has ended

Check to see if the TG-2000A program has ended. If it has not ended, end it.

* For a description of the ending method, see Chapter 7.

2) Start "Add/Remove Programs".

Start by clicking Control Panel's Add/Remove Programs.

3) Select "TG-2000A", and click [Change/Remove] button.

Select "Integrated centralized control software TG-2000A" from the displayed programs, and click

the [Change/Remove] button. Uninstallation of the TG-2000A program begins.
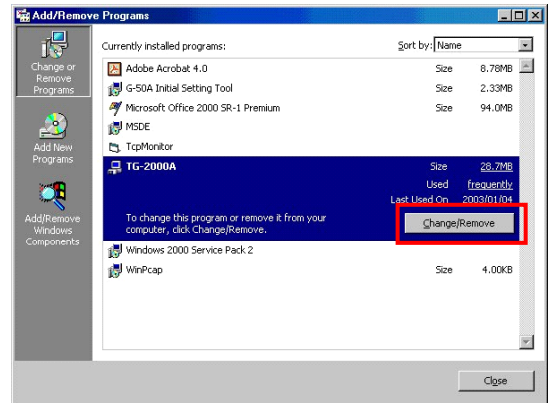
> Note:
> - We recommend that you do not delete all the shared files.
> - This uninstall cannot delete some folders and files. (Ex: C:¥TG2000)

4) "Add/Remove Programs" ending

When program uninstallation ends, Add/Remove Programs ends.

Step 2) MSDE uninstall

1) Start the SQL Server Service Manager

Start the "SQL Server Service Manager" by right-clicking the MSDE icon on the taskbar.

MSDE icon

2) Stop all service

To stop all service, make your selection at the Service field and click the [Stop] button.

3) End the SQL Server Service Manager

The "SQL Server Service Manager" window closes.

4) Close the MSDE icon

Right-click the MSDE icon on the taskbar and select [Exit]. The MSDE icon is removed from the taskbar.

5) Start "Add/Remove Programs".

Start by clicking on the Control Panel's Add/Remove Programs.

6) Choose "MSDE", and click the [Change/Remove] button.

Select "MSDE" from the displayed programs, and click the [Change/Remove] button.

Uninstallation of the MSDE program begins.

> Note:
> - This uninstall cannot delete some folders and files. (Ex: C:¥Mssql7)
> - When MSDE is used, uninstall is unnecessary.

7) "Add/Remove Programs" ending

When program uninstallation ends, "Add/Remove Programs" ends.

5.3.5　Adding files to the ignore list on the anti-virus software (TG-2000A Ver.5.1*)

TG-2000A may be detected as a virus by the anti-virus program on the computer, if one is installed. When this happens, TG-2000A's EXE files need to be added to the ignore list to exclude them from being scanned.
After installing TG-2000A and the anti-virus program, add <u>the following TG-2000A's EXE files to the ignore list</u> for the Firewall or AutoProtect settings on the anti-virus software.

Folder	Files to be added to the ignore list	
C:¥TG2000	TG2000.exe	
	TGSiteTool.exe　　(*1)	(*1) When "Wide area" is set up
	GMailSrv.exe	
	DbBkupTool.exe	
C:¥WINDOWS¥system32	G50Srv.exe	
	GChargeSrv.exe	
	GMultiSrv.exe	
	GTrendSrv.exe	
	GWHMSrv.exe	
	GcoolSrv.exe	Total : 10 files

When installing an anti-virus software, it may ask the user to enter the names of the files to be included in the ignore list. Follow the instructions that appear on the screen to add the above EXE files to the list.
How to add files to the ignore list depends on the anti-virus software. Refer to the Instructions Manual that comes with the anti-virus software.

Important
・Where the EXE files are installed depends on the version of TG-2000A (Ver. 5.5* or later vs. Ver. 5.1*).
 Refer to section 5.2.5 "Adding files to the ignore list on the anti-virus software (TG-2000A Ver. 5.5* or later)" when adding the EXE files of TG-2000A Ver.5.5* or later to the ignore list.

6.1 Window Elements

The window displayed when the power is turned on and no system settings have been made is called the Initial window. The Initial window has the following parts.
(The Initial window can be accessed from the menu bar with a password. For details, refer to section 6.3.)

Title bar:
Shows the title of the window

Menu bar:
Shows a list of functions that may be selected

System setting group:
Sets the group infor mation, monitor dis-

play, charge calcula-tion system, etc

Equipment state display:
Displays the system equipment as error or normal.
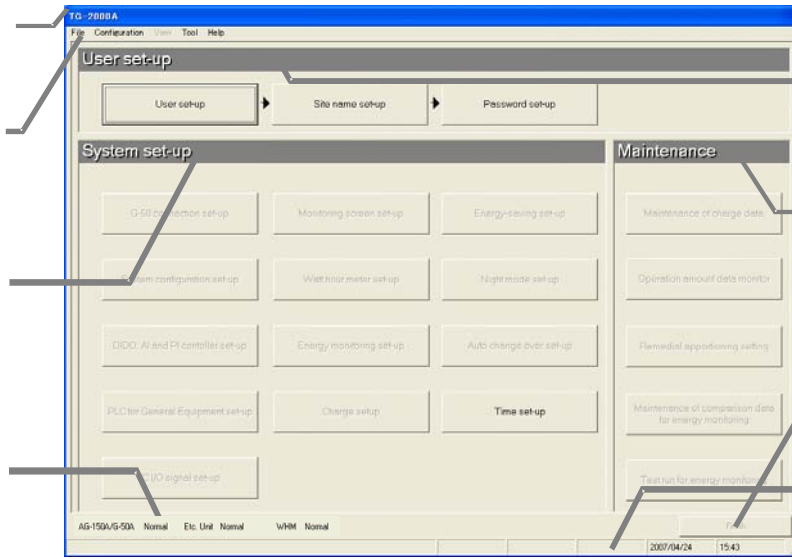
User setting group:
Sets valid/invalid for the function, site name, and password.

Maintenance group:
Function to correct the charge calculation, etc.

Exit button:
Exits the Initial and moves to the Manage ment window

Message bar:
Shows time, warnings, and other

Initial window

Click the buttons to display the window associated with that feature. An example is shown below.

Title bar:
Display the title of the window.

Function display - operation setting section:
Used to display/set the set - ting

contents.

Next,   Back, Cancel, and OK buttons:
Choose to end, return, next, or cancel the setting of func - tion display and operation settings

Message bar:
Display comments about function display and operation

System Configuration Options Control Window

Displays the operation contents of the [Next], [Back], [Cancel], and [OK] buttons on each setting screen.

Buttons	Operation contents
[OK]	Advances to the setting screen with the confirmation contents on the preparation screen determined not to have any problems. Validates the contents set on this display screen to advance to the next setting screen.
[Next]	Advances to the next setting screen.
[Back]	Invalidates the contents set on this display screen to return to the last screen.
[Cancel]	Invalidates the contents set on this display screen to shift to the initial screen.

6.2 Basic Mouse Operation

First, use of the mouse as a pointing device will be explained. If a device other than a mouse is being used, consult with the manual for that device.

The following is a list of terms used in describing mouse operations.

Click : This refers to pressing and releasing the button one time.
To use this function, click the button

Double Click: This refers to pressing and releasing the button twice in quick succession.

Drag : This refers to moving the mouse pointer on top of an object on the screen, pressing and holding down the button to select the object, then, while holding the button down, moving the mouse pointer, and the object, to a different location.

Keyboard : Primarily used when entering password, characters, or numerics.

6.3 Accessing Functions and Moving between Windows

The functions of the TG-2000A can be divided into two general categories.

1) Functions that monitor air conditioner operation status and control functions……Control window
2) Operation and system initialization and charge data maintenance functions (functions used to accomplish functions in 1) above)   ……Initial window

This section deals mostly with functions in category 2).

(1) Shift from the initial window to the control window

The following shows the procedure to shift from the initial window to the control window. Shift the screen to the control window after completing the initial setting shown in Chapter 8.

__During normal operation__

Only the changed settings are transmitted to the AG-150A/G-50A.
Normally shift to the control window using this method.
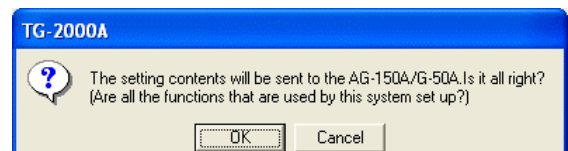
Screen of confirmation for transmitting set contents

[Procedure]

1) Select [Finish] button.

Click the [Finish] button located on the lower right on the initial screen. With the above step, the confirmation screen (asking whether or not to transmit the setting contents to the AG-150A/G-50A) is displayed.

2) Select [OK] button.

Click the [OK] button to transmit the initial setting contents to the AG-150A/G-50A.

* Click the [Cancel] button to return to the Initial window.

Start -up display screen

The start-up display screen is displayed after the screen has been shifted to the control window. The system information set or changed is transmitted to each G-50A to enter upon the start-up processing.
It takes approximately **1 to 20 minutes** to start-up.

__To transmit all settings__

All of the settings are transmitted to the AG-150A/G-50A.
Use this method to shift to the control window when there is a difference in the system information after starting up, or when copying a set database to the site.

All setting transmission window

[Procedure]

1) Select [Configuration] - [All setting transmission] in the menu bar.

Click the [Setting] in the menu bar on the control window to select [All setting transmission].
A screen for confirming whether to transmit all settings to the AG-150A/G-50A is displayed.

2) Select [OK] button.
Click the [OK] button to transmit all settings to the
AG-150A/G-50A.
* Click the [Cancel] button to return to the Initial window.

The start-up display screen is displayed after the
screen has been shifted to the control window.
The system information set or changed is

Confirmation screen for all setting transmission

transmitted to each AG-150A/G-50A to enter upon the start-up processing.
It takes approximately **5 to 20 minutes** to start-up.

(2) Shift from the control window to the initial window
The control window shifts to the initial window when
the initial setting contents are changed or when the
charge calculation maintenance is performed.

[Procedure]
1) Select [Configuration] and then [System set] in the
menu bar.
Click the [Configuration] in the menu bar on the
control window to select the [System set]. The
password confirmation screen is displayed.
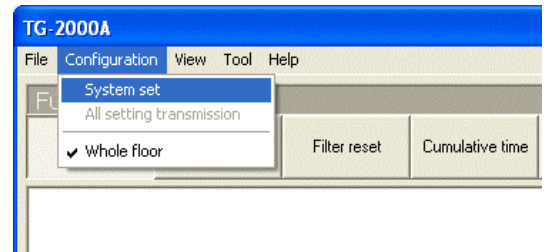
Display screen of Shift to setting screen

2) Enter the password
Enter the word "*****" in the password verification
box, then click the [OK] button. Doing so returns you
to the initial window.
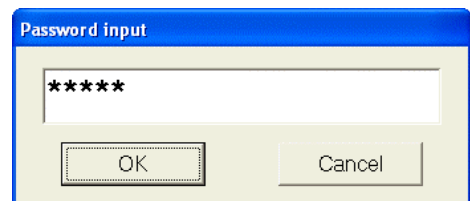
There are 3 kinds of passwords.
Initialization password : All the items in the initial
window can be used.
The initial password is
"SYSTEM".

Password input screen

Maintenance password : The initial window maintenance group and personal password can be
changed. This is also used as the password for "Charge set" on the
control window. The initial password is "Maintenance".
For finishing TG-2000A on the management screen:
It is used to quit TG-2000A from the management screen.
The initial password is "tglogout".

Maintenance Tip
• Manage the password to prevent unauthorized personnel from accessing the system. The
password can be changed.

<TG-2000A screen order 1>

[User setup group]

Power On + Start TG-2000A

Exit TG-2000A, shut down the OS, and turn the power off

MITSUBISHI ELECTRIC CORP.

TG-2000A

Version x. xx

Cod warning display

** WARNING **

Quitting this program will inhibit collection of the charging-related data.

Okay to quit?

Exit   Cancel

Site name set-up

Site name

OK   Cancel

New password set-up

Password

Confirm password

NOTE: Please input new password from 4 to 10 characters.

OK   Cancel

[System setup group]

System data

No system data

Select [File]-[End] button

TG-2000A
File Configuration Tool Help

User set-up

User setup   Site name setup   Password setup

System set-up   Maintenance

Time setup

AG 150A/G/50A Normal   Exc. Unit   Normal   WHM   Normal

Select [Exit] button

Password input

Please wait for a while

Under starting

Please wait for a while

Password input

*****

OK   Cancel

Select [File]-[End] button

*Range described in this manual

Return to Initial window

Control screen window (Management)
(see separate management manual)

40

Wizard name	Primary settings contained in the activated window	Reference page
User Set-up	Set TG-2000A functions	50

Wizard name	Primary settings contained in the activated window	Reference page
Site Name Set-up	Set the product name (site name)	61

Wizard name	Primary settings contained in the activated window	Reference page
Password change	Changes the password to the 3 types of Initial window	61

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for the AG-150A/ G-50A connection setting	Checks the step/caution display for the AG-150A/G-50A connection setting.	62
Number of AG-150A/G-50A units setting	Sets the number of AG-150A/G-50A units.	62
AG-150A/G-50A IP address setting	Sets the IP address for each AG-150A/G-50A. It is possible to display the optional functions of the AG-150A/G-50A.	62

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for System configurations setup	Verifies the order of system configuration settings and displays warnings	64
Collecting AG-150A/G-50A data	Collects the setting information for the AG-150A/G-50A during the initial setting.	64
Unit configurations setup	Sets the unit configurations in AG-150A/G-50A.	65
System structure of refrigerant system	Set refrigerant connections.	68
Function of each group	Set indoor unit and ventilation groups.	69
Ventilation unit grouping	Set ventilators and indoor unit groupings.	69

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for DIDO,AI,PI controller set-up	Set-up procedure and warning display for DIDO, AI and PI controller can be confirmed.	72
DIDO controller set-up	The information of group name, operation category, display and etc. for DIDO controller can be confirmed and saved	72
AI controller set-up	Name, measuring range, warning information and etc. for AI controller can be confirmed and saved.	73
PI controller set-up	The information of name, placement location, unit, pulse and etc. for PI controller can be confirmed and saved.	74

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for PLC for general equipment setting	Verifies the PLC for general equipment setting steps and displays warnings	75
Number of PLC units	Sets the number of PLC units.	75
PLC setting and initial setting	Sets the IP address and initial state for each PLC.	76
Functional setting	Sets the function used with each PLC.	77
Advanced setting (air conditioner status monitor setting)	Sets the AG-150A/G-50A to be monitored with each PLC. Sets this when using interlocking control with air conditioners or the IC I/O signal.	77
Advanced setting (peak cut function setting) *	Sets the AG-150A/G-50A for peak cut operation with each PLC. Sets this when the demand controller is connected to the PLC for general equipment.	77
General equipment setting	Selects the general equipment's functions and sets the name, installation site and display details.	78

* This version is not compatible with the peak cut function.

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation of IC I/O signal setting	Confirm the displayed steps and precautions for the IC I/O signal setting.	80
General equipment setting	Set the general equipment name, contact No. and display details.	81

<TG-2000A screen order 2>

Power On + Start TG - 2000A
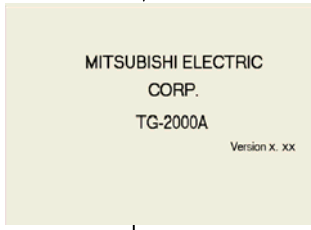
Exit TG-2000A, shut down the OS, and turn the power off

[System setup group]

MITSUBISHI ELECTRIC CORP.

TG-2000A

Version x. xx

** WARNING **

Quitting this program will inhibit collection of the charging-related data.

Okay to quit?

Exit   Cancel

⟺

⟺

System data

No system data

Select [File] - [End] button

⟺

User set-up

| User setup | Site name setup | Password setup |

System set-up

Maintenance

⟺

Time setup

⟺

Select [Exit] button

Password input

⟺

Please wait for a while

Under starting

Please wait for a while

Password input

★★★★★

OK   Cancel

Return to Initial window

* Range described in this manual

Select [File] - [End] button

⟺

Control screen windows (Management)

(see separate management manual)

42
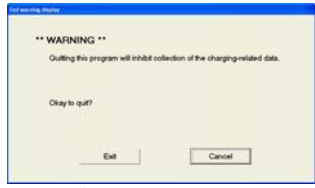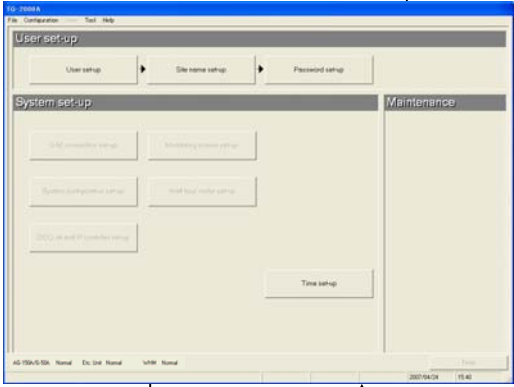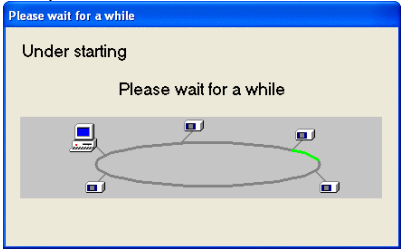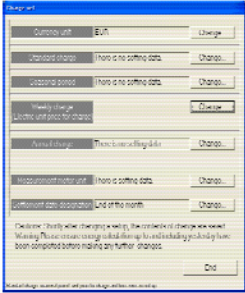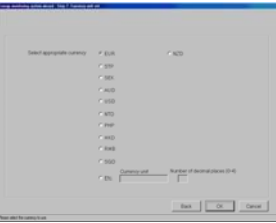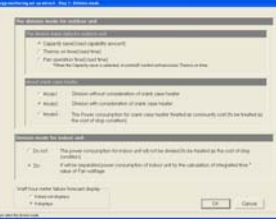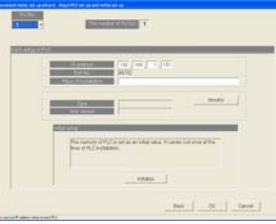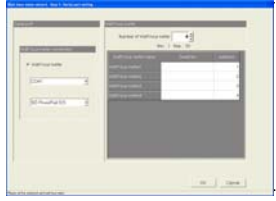
Wizard name	Primary settings contained in the activated window	Reference page
Preparation for Monitoring screen set-up	Verifies the order of monitoring screen settings and displays warnings	83
Set-up of model name	Sets the model name of unit	83
Set-up of the number of floors, and floor name (for sub-screen)	Set the number of floors and floor names for the sub-screen.	84
Plane view creation (for sub-screen)	Create the plane view used with the floor screen for the sub-screen.	85
Set-up of the number of floors, and floor name	Sets the number of floors and floor name.	86
Plane view creation	Create a floor plane to be used in the floor window of the Management screen (control window)	86
Set-up relating a sub screen plane view and a plane view	Set the relation of floor screen for sub-screen and floor screen.	87
Set-up of floor name and AG-150A/G-50A	Set floor and AG-150A/G-50A assignment	87
Set-up of icon arrange and name	Layout icons on the floor plane, and set names	88
Set-up of block	Set groups in blocks	90

Option functions   • When using RS-485 WHM

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for WHM set-up	Check the WHM setting order and notes display.	92
Watt hour meter setting	Sets the watt hour meter connection port and watt hour meter address.	92
Set-up for the name and the maximum count value of WHM	Sets the WHM name, installation location, and maximum integrated value.	93

Option functions   • When using PLC for electric amount count

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for meter setting	Verifies the meter setting steps and displays warnings	94
Number of PLC units	Sets the number of PLC for electric amount count units.	94
PLC setting and initial setting	Sets the IP address and initial state for each PLC.	94
Meter setting	Selects the meter to be used and sets the type name, installation site and pulse units.	95

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for Energy monitoring set-up	Verifies the order of billing settings and displays warnings.	96
Set-up for division mode	Selects the apportioning mode for indoor and outdoor unit systems.	97
Relation between outdoor units and watt hour meters	Assigns outdoor units to watt hour meters.	98
Electrical specification of outdoor units	Set value of crank case heater for outdoor units.	99
Relation between indoor units and watt hour meters	Assigns indoor units to watt hour meters.	100
Electrical specification of indoor units	Set indoor unit capacity and power input.	101
Charging blocks	Set apportionment unit from the operational blocks.	101

Option functions   • When using RS-485 WHM

Wizard name	Primary settings contained in the activated window	Reference page
Currency unit	Sets the currency unit used.	103
Air-Con-charge	Sets the unit price, weekend charges and season charges, etc.	103
Standard charge	Sets the standard (fixed) monthly charge.	104

Option functions   • When using PLC

Wizard name	Primary settings contained in the activated window	Reference page
Basic charge setting (*1)	Sets the basic charges in block and watt hour meter units.	106
Seasonal interval setting	Sets the application of seasonal charges and the interval.	106
Weekly charge setting	Sets the charge time zone and unit price, etc., for each day.	106
Annual charge setting	Sets the charge time zone and unit price, etc., for specific dates in the year.	108
Meter unit price setting	Sets the unit price for the gas, water and calorific value unit.	111

*1: Cannot be set with the power apportionment billing (manual electric amount input) function.
*2. Sets the unit price for meters other than the watt hour meter.

<TG-2000A screen order 3>

Power On + Start TG - 2000A

Exit TG-2000A, shut down the OS, and turn the power off

[System setup group]

MITSUBISHI ELECTRIC
CORP.

TG-2000A

Version x. xx

Tool warning display

** WARNING **

Quitting this program will inhibit collection of the charging-related data.

Okay to quit?

Exit   Cancel

System data

No system data

Select [File]-[End] button

TG-2000A
File Configuration View Tool Help

User set-up

User setup ▶ Site name setup ▶ Password setup

System set-up   Maintenance

CSV communic setup   Monitoring window setup

System configuration setup   Mailbus meter set-up

DIDO-R unit PI controller setup

Time setup

AG-150A/G-50A Normal   Ex. Unit Normal   WHM Normal   2007/04/24   15:40

[Maintenance group]

Date/time set-up

DateSet
11/20/2003

Time Set
2 :33:37 AM

OK   Cancel

Select [Exit] button

Password input

Please wait for a while

Under starting

Please wait for a while

Password input

*****

OK   Cancel

Return to Initial window

Select [File]-[End] button

* Range described in this manual

Control screen windows (Management)
(see separate management manual)

44

• Energy saving and peak cut setting

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for energy saving and peak cut	Verifies the steps and precautions for energy saving and peak cut.	112
Set up of the Watt hour meter for energy-saving/peak cut	WHM for energy saving and peak cut setting	112
Peak cut set-up	Peak cut setting. *Only when using peak cut.	115

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for night mode set-up	Verifies the steps and precautions for night mode set-up.	120
Night mode set-up	Sets the outdoor unit for the night mode and the time to carry out the night mode for each AG-150A/G-50A.	120

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Preparation for system-changeover set-up	Verifies the steps and precautions for system-changeover (automatic cooling/heating switching) set-up.	121
System-changeover set-up	Sets the main group of the refrigerant system block for carrying out System-changeover, etc., for each AG-150A/G-50A.	121

Wizard name	Primary settings contained in the activated window	Reference page
Time set-up	Sets the current time.	124

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Maintenance of charge data (Present value monitor)	Data for the last 62 days from the watt hour meter, indoor units, and outdoor units can be viewed and edited. (Also, current values for watt hour meters can be monitored.)	129
Maintenance of charge data (Meter maintenance)	Watt hour meter data from the last 62 days can be viewed and edited.	133
Maintenance of charge data (Unit)	Data for the last 62 days from indoor units and outdoor units can be viewed and edited.	140

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Operation / electric power amount data monitor	Operation data stored in AG-150A/G-50A can be monitored and saved. Also, electric power amount data stored in PLC(or AG-150A/G-50A) can be monitored and saved.	135

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Remedial apportioning setting	Remedial apportioning can be tentatively performed when charging trouble occurs.	137

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Billing comparison data maintenance	The data used to compare apportioned charges when the AG-150A/G-50A or PLC fails can be cleared.	151

Option functions

Wizard name	Primary settings contained in the activated window	Reference page
Billing trial operation	This function enables trial operation of the power apportion billing. A state similar to the actual charge calculation can be calculated and confirmed in one day.	182

45

7.1 Before Startup

Please confirm the following items before starting the TG-2000A application.
(1) A test run of the air conditioning system has been completed.
(2) Check that the computer, hub, AG-150A/G-50A, power supply unit, and air conditioner power are turned on.
(3) All PC hardware and cables have been connected and the proper software installed.
(4) "Date and time" setting are correct.

7.2 Startup

Start the integrated centralized control software TG-2000A application.
Follow these steps to startup the TG-2000A application.

[Procedure]
1) Restart Windows
    When Windows(OS) restarts, the user automatically logs on and the TG-2000A program starts. When the startup process begins, the setup screen is displayed.
    * When Windows(OS) restarts, the integrated centralized control software TG-2000A application starts automatically.

Desktop screen

After the startup screen is displayed, the behavior of the application depends on the existence of System Settings data.

  Case 1: Without System Settings data: (the first startup)
    The initial screen is displayed. Start with Chapter 8 "Changing System Settings"

  Case 2: With system setting data
    After the system has been set up once, turning on the power brings up the Management window, and the startup process begins immediately.
    The startup process takes some time (approx. 10 to 20 minutes).
    To change the initial settings, go to the initial window.
    Refer to the procedure in section 6.3 "Accessing functions and moving between windows".

MITSUBISHI ELECTRIC
CORP.
TG-2000A
Version x. xx
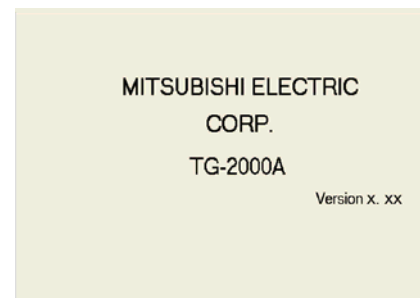
Startup screen
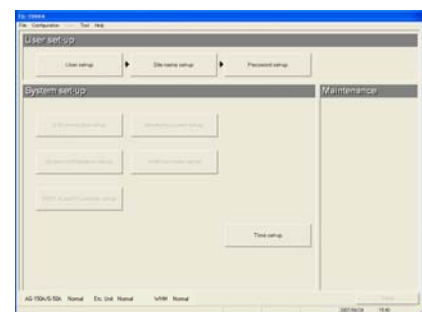
Initial window

Maintenance Tip
- For safety reasons, make a thorough check of all equipment and connections.
- The "detach" and "attach" shortcut icons on the desktop screen are for servicing. Do not use these during normal operations.
- Launch TG-2000A in the "Wide are" mode from the "Site change tool."
  Refer to "Chapter 4 The Usage of the Site Change Tool" in the manual (Wide area) for information on "Site change tool."
- The warning message may appear depending on the the security software when the firewall is activated. Set the TG-2000A software to "Always connected".

7.3 Shutdown

TG-2000A Shutdown
Follow these steps to shutdown TG-2000A.
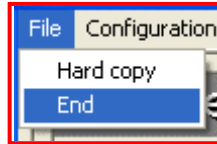
[Procedure]
1) Select the End option in the File menu in the Menu Bar
 Always end the application before turning off the power.
 Shutdown is done from the initial window.
 Select the File menu in the Menu Bar and select the End option.
 * To switch to the Initial window, refer to section 6.3.

2) Select [Exit] button.
 The shutdown confirmation dialog box appears asking to confirm this action.
 After verifying the content of the dialog box, click the [Exit] button to exit the application.
 * Click the [Cancel] button to return to the Initial window.

End the application

Maintenance Tip
 • Always exit the TG-2000A application before turning off the PC. Failing to do so could result in damage.
 • Note that when the TG-2000A application is exited, the functions used stop. When the charge calculation function (only for constant operation) is used, set the operation mode to TG-2000A 24-hour continuous operation.
 • If the message "There is data which has not been transmitted to AG-150A/G-50A. Please end after choosing "Cancel" button, choosing a "Finish" button and transmitting data." appears on the End warning display screen, always click "Cancel", and click the "Finish" button on the initial window, and then transmit the setting changes to the AG-150A/G-50A before ending.
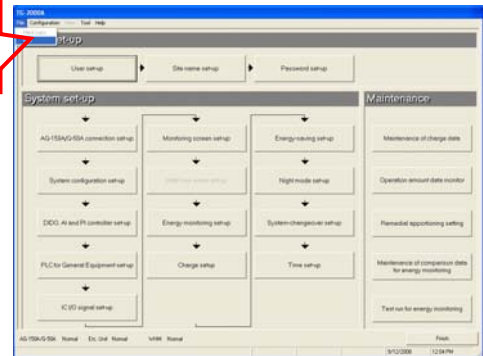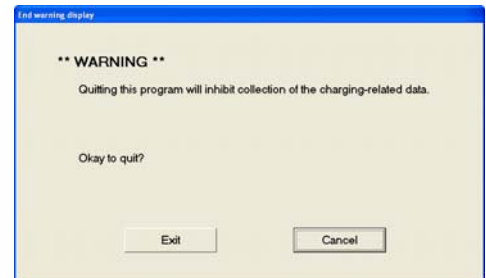
Shutdown verification
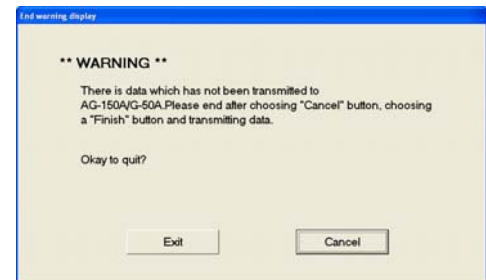
End confirmation window (with warning)

Shutting down the OS
 Shut down the Windows(OS) after verifying that the TG-2000A application has been exited. Turn off the PC after shutting down the OS.
 * Please see the OS or PC owner's manual for procedures on shutting down the OS and turning off the PC.

8. System Setting Procedure

8.1 System Setting Screen

The following is an explanation of the items found in the System Settings window.
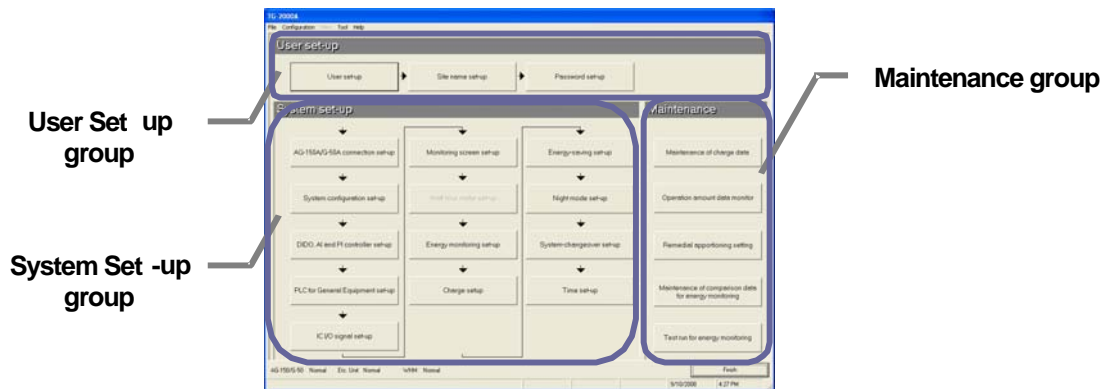
Initial window

Function group	Function	Operation details
[User Set-up group]	User set-up	Allow or disallow certain functions
	Site name set-up	Set the building name
	Password set-up	The password can be changed
[System Set-up group]	AG-150A/G-50A connection set-up	Sets the number of AG-150A/G-50A units connected and the IP address.
	System configuration set-up	Sets the system configuration, group, interlocking unit, etc.
	DIDO, AI, PI controller set-up	Sets the each item of DIDO, AI, PI controller.
	PLC for general equipment set-up	Sets the number of PLC units, and general equipment functions and names, etc.
	Monitoring screen set-up	Executes the model name setting, plane drawing creation, group icon arrangement, etc.
	Measurement meter set-up (Watt hour meter set-up)	Sets the number of PLC units, and meter type, name and pulse unit, etc. (Set the watt hour meter serial port and watt hour meter address)
	Energy monitoring set-up	Set the system billing function
	Charge set-up	Sets the basic charge, seasonal/interval, weekly charge, and annual charges, etc.
	Energy saving set-up	Sets the control operation, etc., for energy saving operation.
	Night mode set-up	Sets the night mode target and time.
	System-changeover set-up	Sets the refrigerant target and changeover mode, etc., for automatically changing between cooling and heating.
	IC I/O signal set-up	Sets the general equipment connected to the IC I/O signal, etc.
	Time set-up	Set the current time. Each AG-150A/G-50A time can be monitored.
[Maintenance group]	Maintenance of charge data	Proportional billing information can be revised. The WHM present value can be monitored or changed (overwritten).
	Operation amount/electric amount data monitor	The AG-150A/G-50A operation amount, PLC measurement/power amount data can be monitored and overwritten.
	Remedial apportioning setting	Remedial apportioning can be tentatively performed when charging trouble occurs.
	Maintenance of comparison data for energy monitoring	The data used to compare apportioned parameters when the AG-150A/G-50A or PLC fails can be cleared.
	Test run for energy monitoring	Operation can be tried to confirm that the charge function is operating correctly.

Note:
- Refer to Chapter 9 for the maintenance group items.
- The set items that are displayed depend on the functions of theTG-2000A purchased.

48

Displays the operation contents of the select buttons on each setting screen.

Buttons	Operation contents
[OK]	Validates the contents set on this display screen to advance to the next setting screen. (Advances to the next setting screen if it is the preparation screen.)
[Next]	Advances to the next setting screen.
[Back]	Invalidates the contents set on this display screen to return to the last screen.
[Cancel]	Invalidates the contents set on this display screen to shift to the initial screen.

8.2 System Setting Procedure

The following is an explanation of the System Settings performed at the Initial window.

When no System Settings exist

User setting group
  Step 1: "User set-up"
  Step 2: "Site name set-up"
  Step 3: "Password set-up"
System setting group
  Step 4: "AG-150A/G-50A connection set-up"
  Step 5: " DIDO, AI and PI controller set-up" *5
  Step 6: "System configuration set-up"
  Step 7: "PLC for General Equipment set-up"
         *1, *2, *4
  Step 8: "Monitoring screen set-up"
  Step 9: " Measurement meter set-up" *3
  Step 10: " Energy monitoring set-up" *3
  Step 11: "Charge set-up" *3
  Step 12: "Energy-saving set-up" *4
  Step 13: "Night mode set-up"
  Step 14: "System-changeover set-up"
  Step 15: "IC I/O signal set-up" *2
  Step 16: "Time set-up"
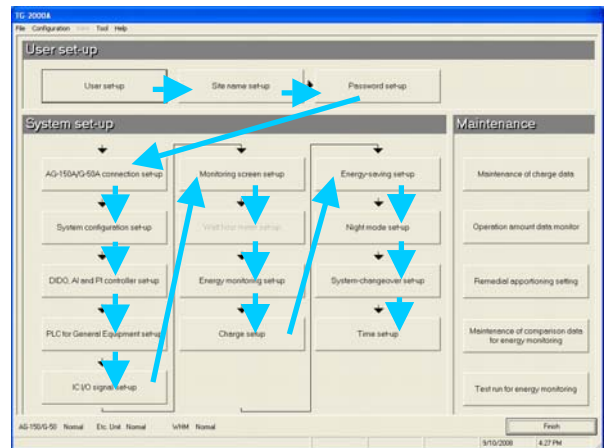
*1: This must be set when using the general equipment.
*2: These items must be set when using the general equipment (IC I/O signal).
*3: These items must be set when using the power apportionment billing function. The " Measurement meter set-up" step is not required when using only the power apportionment billing (manual electric amount input) function.
*4: This item must be set when using the energy saving or peak cut functions.
*5: This item must be set when using the DIDO, AI and PI controller.

  * Even if the AG-150A/G-50A is not actually connected, it is possible to set it in advance as long as information such as system configuration, etc. is available.

Caution:
- If the settings are done out of order, some items will not be available and others will have to be set again.
- Time set-up and Site name set-up are only performed when necessary. Check the time for each AG-150A/G-50A with "Time set-up", and set the time when necessary. For "Time set-up" check the time of each AG-150A/G-50A and PLC, and set the time if necessary. If the time is set incorrectly, the function does not work properly.
- Even if the operation settings are unclear, set all of the system setting items that appear.

When System Settings exist

Make any changes to the settings.

Note:
- Changing certain settings affects the status of other settings.
- User set-up in particular affect other settings and functions.
- Changing the settings on the left affects the settings on the right.

	Change and setting items	Items that must be confirmed (affected items)
1	"System configuration set-up"	"Monitoring screen set-up", "Energy monitoring set-up" "Night mode set-up","System-changeover set-up"
2	"PLC for General Equipment set-up"	"Monitoring screen set-up"
3	"Monitoring screen set-up"	"Energy monitoring set-up"
4	" Measurement meter set-up " ("Watt hour meter set-up")	"Energy monitoring set-up", "Energy saving set-up"

After setting all items on the initial screen and selecting the [Finish] button, the confirmation message [All the contents of a setting are transmitted to AG-150A/G-50A. Is it all right?] appears. Select [OK] and transmit the latest setting information to the AG-150A/G-50A.

[OK] button
The group information, etc., is transmitted to the AG-150A/G-50A.

Note:
• If all settings must be transmitted due to a difference in the system information, etc., carry out "To transmit all settings" in section "6.3.(1) Shift from initial window to the control window".

8.3 User Set-up

Use these settings to allow or disallowTG-2000A general operations, printer, charge (billing), and external I/O functions.

Activating TG-2000A Functions

[Procedure]
1) Click the User set-up button
   From the Initial window, click the User set-up button in the User set-up group. The User set-up window appears.
2) Select the [Finish] button after setting all items
   Click the [Finish] button after setting all items in the User setting windows 1 through 4.
   * The settings will be invalidated when the [Cancel] button is clicked.
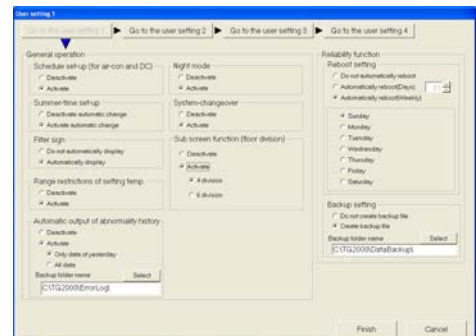
User setting 1 window

Note:
・The following folder cannot be specified for "Backup folder name" of "Backup setting".
x:¥Windows , x:¥WinNT , x:¥Documents and Settings , x:¥Program Files , x:¥ProgramData , x:¥Users , and C:¥   ("x" shows the drive letter.)

Changing the User setting window

[Procedure]
1) Select [User set-up *] button.
   Click the [User setting 1], [User setting 2], [User setting 3], or [User setting 4] button.

User setting 2 window

Note:
・Click "Go to the user setting *" to switch between the user setting windows.
・The settings in each window will be stored even after switching to another user setting window. After setting all the necessary items, click "Finish."
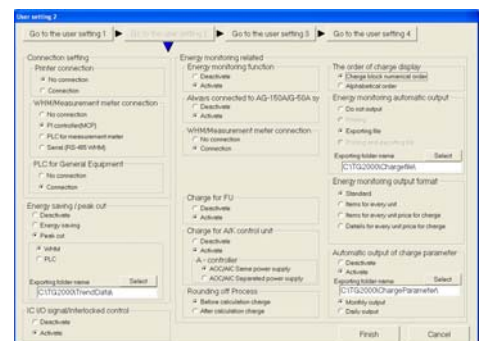
8.3.1 General Operation
Set the schedule and summer time and turn on and off the filter sign automatic display function (Range restrictions of setting temp.).

Setting general operation options

[Procedure]

1) Click the option button.

Set the "Schedule set-up", "Summer-time set-up", "Filter sign" "Range restrictions of setting temp.", "Night mode set-up", "Auto change over set-up" and "Sub screen function (floor division)" under General operation. Click on the option button for the details to be set.

Item	Set value	Details
Schedule Set-up *1	Off (Deactivate) (Default)	Turns the scheduling function off.
	On (Activate)	Turns the scheduling function on.
Summer Time Set-up	Off (Deactivate)	Do not automatically adjust the AG-150A/G-50A for summer time.
	On (Activate) (Default)	Automatically adjust the AG-150A/G-50A for summer time. (Automatic monitors take place at 04:17 AM)
Filter sign	Off (Deactivate)	Do not automatically display.
	On (Activate)	Automatically display. (Default)
Range restrictions of setting temp.	Off (Deactivate) (Default)	Temperature limit range is not set
	On (Activate)	Temperature limit range is set
Automatic output abnormality history *2	Off (Deactivate) (Default)	Do not automatically output
	On (Activate)	Automatically output once a day Choose from "Only data of yesterday" and "All data".
Night mode set-up	Off (Deactivate) (Default)	Turns the night mode function off.
	On (Activate)	Turns the night mode function on.
System-change over set-up *3	Off (Deactivate) (Default)	Turns the system-changeover function off.
	On (Activate)	Turns the system-changeover function on.
Sub screen function (floor division)	Off (Deactivate) (Default)	Turns the floor division function off.
	Divide (4 sections)	Turns the floor division function on.
	Divide (6 sections)	Turns the floor division function on.
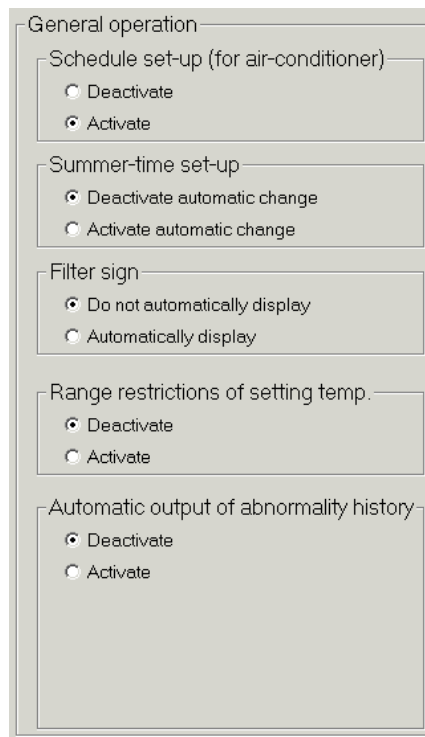
General operation set up
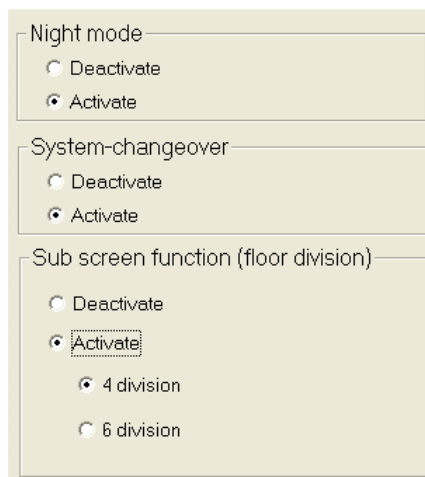
*1: Refers to the annual/weekly schedule.

*2: The file output default can be changed with "C:¥TG2000¥ErrorLog¥"

*3: System-changeover is the function that automatically switched between cooling and heating modes of Y series (cooling/heating change over type).

Note
- The floor layout that was created for the TG-2000A cannot used with the AG-150A. Likewise, the floor layout that was created for AG-150A cannot be used with the TG-2000A.

Note:
- When filter sign automatic display is deactivated, the filter status is not reflected automatically even when the filter sign window is selected. When the View filter button is clicked, the filter status is reflected.
- To use the Schedule Set-up, it is necessary to register the license number of the annual/weekly schedule separately with the AG-150A/G-50A. When the license is not registered with the AG-150A/G-50A, it only possible to use the weekly schedule function of the AG-150A/G-50A. In this case, the schedule setting made from the integrated centralized control softwareTG-2000A is invalidated, resulting in operation failure.
- The set temperature range limit can be reflected onto only the ME remote controller and individual browser. (This function may not be available from the MA remote controller, depending on the model of indoor units connected to the system.)

8.3.2 Reliability Function
Turn on and off the automatic reboot function as backup and the database backup function.

Setting automatic reboot and database backup function
[Procedure]

Automatic reboot setting

1) Click the option button
Use the option button to select the Automatic Reboot function.

Automatic reboot setting
Do not automatically reboot : Does not automatically reboot. (Default)
Automatically reboot(Days)   : Automatically reboots on the selected day
Automatically reboot(Weekly) : Automatically reboots on the selected day of a week

2) Select the reboot interval using the "▲/▼ " buttons.
When automatic reboot was set to On, select the automatic reboot day using the "▲/▼" buttons. The setting range is the 7th thru 31st day after booting. The initial value is the 31st day.

3) Automatically reboots by Weekly specification
When "Weekly automatic reboot" was set to On, select the day of a week. Only one day of the week can be selected.

Backup setting

4) Click the option button
Use the option button to select the Database Backup function.

Backup setting
Off (Deactivate)   : Do not back up the database. (Default)
On (Activate)   : Back up the database.

5) Set the output folder.
When database backup was set to On, set the database folder to be backed up using the Browse button. The initial value is "C:¥TG2000¥databackup".
*   Set the folder to be backed up to an HDD drive different from the C: drive.

Reliability Function Settings window

Maintenance Tip
- **Manually restart theTG-2000A application and Windows(OS) on a regular basis (once a week). (Perform the restarting operation during the period from 08:00 to 21:45.)**
  * Recommendation: Perform manually without automatic rebooting.

Note:
- When Windows(OS) is used continuously without restarting, system errors may accumulate. Thus it is necessary to restart both TG-2000A and the Windows(OS).
- The automatic restart function serves to insure that the system restart is done on a regular basis. If there is an error during the automatic restart, the system must be restarted manually. Since there is a possibility of the error not being detected, it is recommended to periodically restart the system manually.
- When automatic reboot is set to [ON], Windows reboots automatically at 06:35 on the 7th to 31st day after booting. (The number of days depends on the set value.)
- The system configuration, history, and charge data databases are backed up. The trend and display characters databases are not backed up.

8.3.3 Connection Setting

Set whether each device is connected on the User setting 2 window.
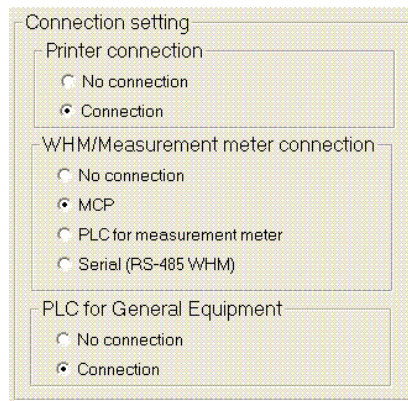
Connection settings

Setting connector options

[Procedure]

1) Click the option buttons

Use the option button to select the printer and WHM connection.

Available printer options are ON or OFF.

The validity of the billing settings and energy saving functions are reflected with the watt hour meter/meter settings.

Item	Set value	Details
Printer connection	Off (No connection) (Default)	Turns the printing function off.
	On (Connection)	Turns the printing function on.
WHM/Measure-ment meter connection	OFF (No connection) (Default)	The watt hour meter/measurement meter cannot be connected.
	PI controller (MCP)	The watt hour meter/measurement meter can be connected with an PI controller.
	PLC	The measurement meter can be connected with a PLC connection.
	Serial	The watt hour meter can be connected with an RS-485 connection.
PLC for General Equipment	OFF (No connection) (Default)	The general equipment cannot be connected.
	ON (Connection)	The general equipment can be connected.

Note:
- Data cannot be printed if this option is OFF.
- Install the printer driver and confirm that printing is possible beforehand.

8.3.4 Energy Saving /Peak Cut and IC I/O Sigmal/Interlocked Control Setting

Set the energy saving settings/peak cut function and trend functions

Peak Cut, etc. functions

Set whether the other functions are valid.

[Procedure]

1) Click the option button.

Select the energy saving/peak cut function settings with the option button.

Item	Set value	Details
Energy saving/ peak cut function *1	Deactivate	Energy saving/peak cut function disabled. (Default)
	Energy saving	Energy saving function enabled.
	Peak cut (WHM)	Peak cut function with WHM enabled. (Including energy saving function)
	Peak cut (PLC)	Peak cut function with demand controller connected to PLC (Including energy saving function)
IC I/O signal /interlocking control function *2	Deactivate	Do not connect general equipment to IC I/O signal. (Default) Interlocking control will not be performed on PLC for general equipment.
	Activate	Connect general equipment to IC I/O signal for monitoring and operation. Interlock control will be performed on PLC for general equipment.

*1: There are two types of peak cut functions.
  WHM: The power rate is read in from the electric amount count PLC or PI Controller, and the level is judged by the AG-150A/G-50A.
  PLC for demand input: A demand controller is connected to the PLC for demand input, and the PLC for demand input which receives contact signals according to the level notifies the AG-150A/G-50A.
*2: When interlocking control, such as stop of the air conditioner, is performed on PLC for general equipment while the general equipment (e.g. card key) is ON, "Activate" must be set.

Note:
- The "Peak cut function" cannot be selected when the PLC watt hour meter or PI Controller, is not connected.
- The "Energy saving function" and "Peak cut function" license numbers must be registered in the G-50A to use the energy saving function and peak cut function.

8.3.5 Energy Monitoring Related

Follow these steps to energy monitoring functions On or Off, automatically print air conditioning charges, and set printing options.

Energy monitoring functions On or Off

[Procedure]

1) Click the option button

Use the option button to select Energy Monitoring function, Automatic Air Conditioning Charges Print, or Air Conditioning Charge Output Processing function setup.

Energy monitoring related

Item	Set value	Details
Energy monitoring function	Off (Deactivate) (Default)	Deactivates Energy monitoring related
	On (Activate)	Activates Energy monitoring related
Always connected to G-50A system	Off (Deactivate)	Deactivates always connected to G-50A system function.
	On (Activate) (Default)	Activates always connected to G-50A system function. (Recommended mode)
Energy monitoring automatic output	Off (Deactivate) (Default)	Do not automatically print air conditioning charges.
	Printing	Print Energy monitoring automatic printing information automatically.
	Exporting file	Automatically output air conditioning charge result as a file. *1
	Printing and exporting file	Automatically print and automatically output air conditioning charges as exporting file a file. *1
Energy monitoring output format	Standard (Default)	Output standard items
	Items for every unit	Output air conditioning charge summary for each unit
	Items for every unit price for charge	Output air conditioning charge summary for each unit price
	Details for every unit price for charge	Output detailed air conditioning charge summary for each unit price
WHM/Measurement meter connection	No connection (Default)	Charge calculation function without WHM connected… Manual electric amount input
	Connection	Charge calculation function with WHM connected
The order of charge display	Block No. order (Default)	The charges are displayed in the order of the registered block numbers.
	Alphabetic order	The charges are displayed in alphabetic order.
Charge for FU	Off (Deactivate) (Default)	Deactivate apportioning billing system for OA processing unit (FU).
	On (Activate)	Activate apportioning billing system for OA processing unit (FU).
Charge for A/K control unit *2	Off (Deactivate) (Default)	Deactivate apportioning billing system for A-control and K-control units.
	On (Activate)	Activates apportioning billing system for A-control and K-control units.
A-controller *3	AOC/AIC Same power supply	System is configured in the way that the A-control outdoor and indoor units are powered from the same power source to which a single watt-hour meter is connected.
	AOC/AIC Separated power supply	System is configured in the way that the A-control outdoor and indoor units are powered from different power sources to which separate watt-hour meters are connected.
Automatic output of charge parameter *4	Off (Deactivate) (Default)	Do not automatically output charge parameter.
	On (Activate)	Automatically output charge parameter. *2 （Monthly or Daily output）
Rounding off Process *5	Before calculation charge (Default)	Charges are calculated after the apportioned electric power is rounded off.
	After calculation charge	Charges are calculated without the apportioned electric power being rounded off, and the result is rounded off.

*1: The default file output can be changed with [C:¥TG2000¥Chargefile¥].
*2: Not all functions are supported by all units.

*3: Selectable only when the "WHM/Measurement meter connection" setting is set to "Connection" and the "Charge for A/K control unit" setting is set to "Activate."

The value for "AOC/AIC Same power supply" is calculated by factoring the amount of indoor fan operation in to figure out the apportioned electric power for the A-control outdoor unit because the indoor and outdoor units are both powered from a single power source.

On the other hand, when calculating the value for "AOC/AIC Separated power supply," the amount of A-control fan operation is not factored in to figure out the apportioned electric power for the A-control outdoor units since these indoor and outdoor units are powered from separate power sources.

The amount of apportioned electric power for the A-control outdoor units in the system using TG-2000A Ver. 5.20 or earlier, is calculated in the same way (the amount of indoor fan operation is not factored in).

To calculate the apportioned electric power in the same way, select "AOC/AIC Separated power supply."

*4: The default file output can be changed with [C:¥TG2000¥ChargeParameter¥].

A folder "¥yyyy (year) ¥mm(month)¥" will be created in the folder that is selected in the user setting 2 window. The charge parameter will be saved in this folder.

*5: In the system using TG-2000A Ver.5.20 or earlier, charges are calculated without rounding off the apportioned electric power. To calculate the apportioned electric power in the same way as the earlier versions, select "After calculation charge."

Note:
- When the printer is not connected, it is unable to set the printing for the "Energy monitoring auto output".
- When thisTG-2000A is not provided with the "Charge function", this screen is not displayed. In order to use the charge function, please contact a Mitsubishi official sales office or supplier.
- The charge function can be set only for No WHM connected, PLC connected or RS-485 connected (Manual electric amount input, electric amount pulse count or direct read in of power value into computer).
- The filename is "(Month)-(Year) *.csv". (*: B=Block units, W=WHM units)
  (The year and the month when the charge calculation is performed are shown.
  Eg. When the calculation for September, 2005 is performed at the end of the month, the file name will be "09-2005B.csv".)
- When using the "Charge calculation function", it is necessary to register the license number of the "Charge calculation function" separately with the AG-150A/G-50A. If the license is not registered with the AG-150A/G-50A, the charge calculation function will not operate properly. It is necessary to register the "Charge function" license with all AG-150A/G-50A units controlled by theTG-2000A.
- In regard to the output format, the details for each unit, etc., are compatible even with the designated settlement date calculations from this Ver. 4.30. Note that the output format differs from previous versions.

Note: (The end method of a user setup .)
Click the [Finish] button when finished setting User setting 1 through User setting 4. The details set on User setting 1 through User setting 4 will be saved, and the initial window will appear.
If [Cancel] is clicked, all of the details set on User setting 1 through User setting 4 will be deleted, and the initial window will appear.

8.3.6 Setting the Warning Sound

Make the setting for the warning sound on User setting 3 window.
(User setting 4 on TG-2000A Ver.5.10 or earlier and Ver.5.20)
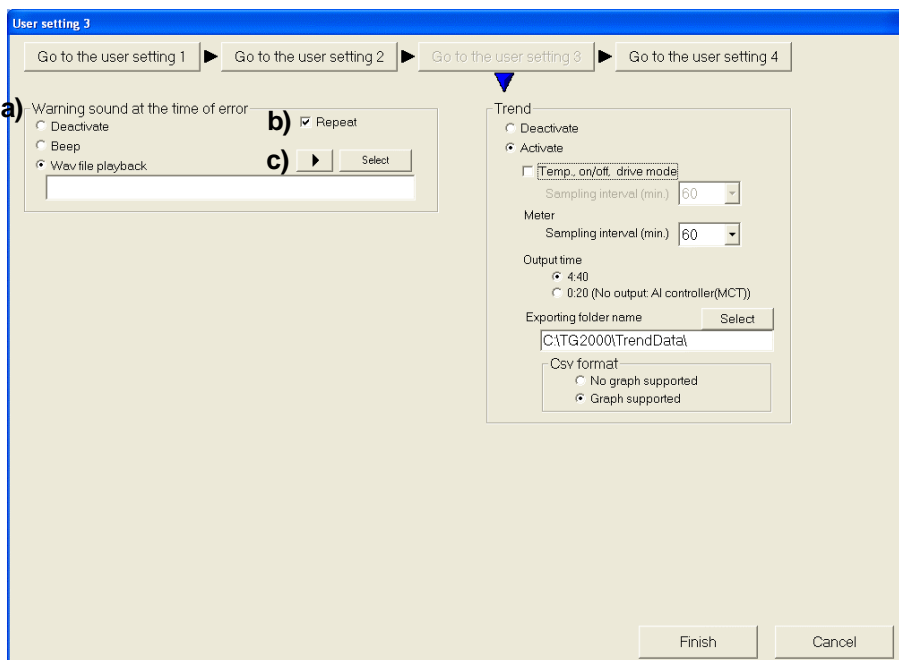
User setting 3 window

[Operation Method]

1) Make the following settings with the option button

Enable or disable the warning sound and select the play mode.

Item	Setting	Content
a)Warning sound upon error detection	Does not play (Default)	Warning sound will not sound, nor the pop up window will appear on the screen upon error detection.
	Beep	Upon error detection, the warning sound that is selected on the control panel will sound once, and the pop up window will appear on the screen.
	Plays wav file	Upon error detection, the wav file that is selected in this setting window will be played once, and the pop up window will appear on the screen.
b)Repeat	Input	This setting is available only when "Beep" or "Plays wav file" is selected. When this function is enabled, either type of the selected warning sounds will be played repeatedly.
c)Repeat button	―	Use this button to check the warning sound.

Notes
・Playback of warning sounds and pop up window display are available only on the TG-2000A's management screen.
・If another error is found in another system after the warning sound is turned off or the pop up window is closed, a warning sound will sound again and the pop up window will reappear.
   Pop up frequency : Every error
   Warning alarm frequency : Every error code except for the one set to OFF
・A PC that is not equipped with a speaker will not play the warning sound.
・The sound volume depends on the Windows settings.
・The sound volume and quality depends on each PC. Change the setting to turn up the volume of the warning sound.
・The sound quality of the general warning sound (beep) will depend on the settings on the control panel, but the sound quality of the wav file will not.

8.3.7 Trend setting
Set the trend functions.

Set whether the other functions are valid.
[Procedure]
1) Click the option button
Select the trend function settings with the option button.

Other functions (1)

Item	Set value	Details		
Trend	Deactive (Default)	Trend function deactivated.		
	Active	Trend function enabled. *2		
		Temperature, on/off, mode, error trend function: Activate/deactivate (Default)		
		Sampling interval setting: Select from 2, 5, 10, 15, 30, 60 (Default)		
		Trend function for AI controller:		
			Effective/nullity (Default) *Effective when connecting with a measuring meter.	
			Sampling interval setting : Select from 5,10,15,30,60 (Default)	
		Select the output time		
			4:40 （default），0:20 *3	
		File output target		
			Specify the output files *1	
		Output format		
			Previous data format : Does not use graph function Graph function associated format: Use graph function	

*1:   The file output default can be changed with "C:¥TG2000¥TrendData¥".
*2:   The temperature, on/off, mode trends are available only for the indoor unit group, and include A control and K control.
*3:   When selecting "0:20," trend data of AI controller does not automatically output. Select 4:40 (Default)" for automatic output.

Note:
- To use the trend function for the temperature, on/off, and drive mode, block settings for the control target indoor unit groups need to be set.
- If the trend function is not required, the function should be "Disabled" to reduce the operation load.
- The electric amount value and power apportion value trends are automatically judged according to the connection or presence of functions.
- When the trend output function is used, check that the CSV files are automatically output.
- Those automatically output trend data CSV files are kept in the target output folder for two years. The files in the monthly folder are deleted after two years have passed. Periodically back up data to external memory storage device.
- How long the data are kept and how often the data are collected depend on the types of trend data.

8.3.8 Transmission of automatic output file by email

On the User setting 4 window, make the settings for e-mailing the files that are automatically output. (User setting 3 on TG-2000A Ver.5.10 or earlier and Ver.5.20)

*On the User setting 3 window, set Trend funcion when setting trend data as a target of the e-mailing .
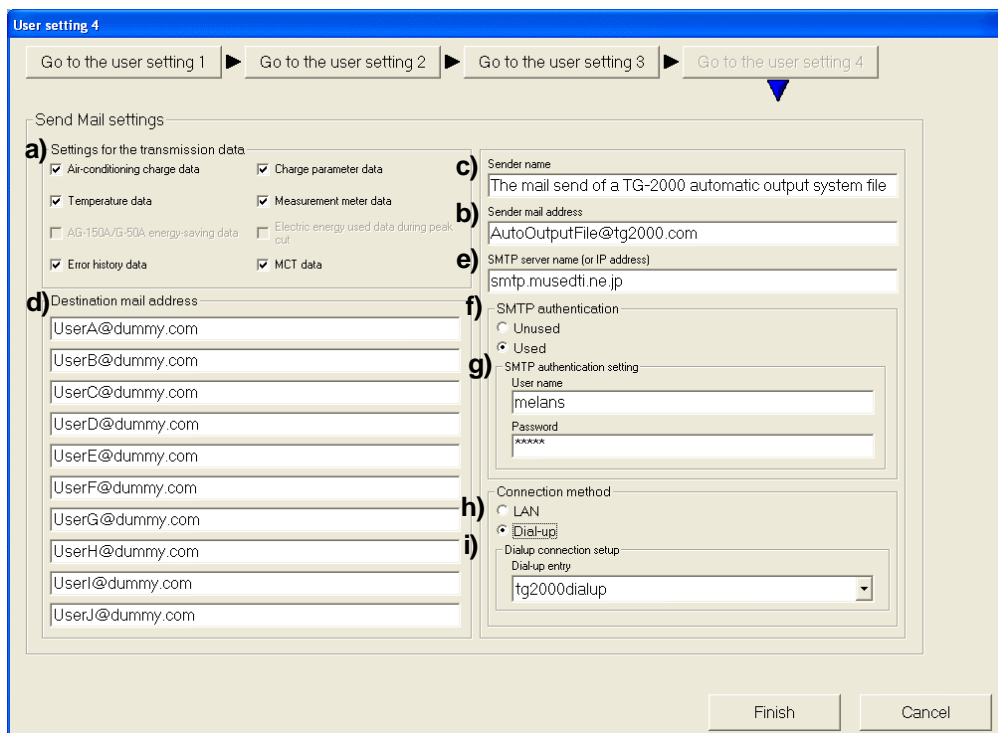
User setting 4 window

[Operation Method]

1) Make the following settings with the option buttons and Enter.

Enter the file type, sender mail address, sender name, destination mail address, SMTP server name, SMTP authentication, and SMTP authentication settings.

Item	Setting	Content
a)Type of files to be sent	Deselected	"Transmission of automatic output file by email" function is not used. (Default) No other settings are required if this setting is chosen.
	Selected	Selected output files are e-mailed.
b)Sender mail address (Required)	Input	Acquire and set an e-mail address for TG-2000A.
c)Sender name	Input	Enter the "Sender" information on the mail software on the receiver's side. The use of the facility name as the sender name will make it easy to identify the sender. (Max. 60 characters)
d)Destination mail address (Required)	Input	Set the destination mail address for the automatic output file. Up to 10 destination addresses can be set.
e)SMTP server name (Required)	Input	Set the mail server name or the IP address for the SMTP. Ask the IT management staff for details.
f) SMTP authentication	Unused	SMTP authentication is not used when sending e-mails. (Default)
	Used	SMTP authentication is used when sending e-mails. This setting requires the setting that is listed under g). Ask the IT management staff for questions regarding SMTP authentication.
g)SMTP authentication settings	Input	Choose the user name and password.
h)Connection method	Selected	Choose LAN connection or dial-up connection.
i) Dial-up connection setting	Input	Choose the connection destination to be used at dial-up connection.

To send e-mails, enter the required field. Ask the IT management staff for details of mail settings.

[Timing of e-mail Transmission]

Type of Data	Setting for Output (User Setting)	Output Timing
Air-conditioning charge data	Energy monitoring function: Enabled Energy monitoring automatic output: Enabled	Monthly: The day after the cutoff date
Charge parameter data	Energy monitoring function: Enabled Automatic output of charge parameter: Enabled	Monthly: The day after the cutoff date Daily: Every day (previous day) Select monthly or daily.
Temperature data	Trend: Enabled (Temp, on/off, drive option: On)	Every day
Measurement data	Trend: Enabled WHM/Measurement meter connection: Yes	Every day
AG-150A/G-50A energy-saving data	Energy saving/peak cut: peak cut	Every day
Electric energy used data during peak cut	Energy saving/peak cut: peak cut (WHP option: Enabled)	Every day
Error history data	Automatic output of abnormality history: Enabled	Every day
AI controller (MCT) data	Trend: Enabled	Every day

Notes
· <, >, &, " and ' cannot be used in the mail address.
· With the permission of the receiver, set the receiver's mail address.
· The timing for the mail transmission depends on the output time of the automatic output file.
· The mails are sent separately by file types.
· When the number of files exceeds 100 or if the file size exceeds 1MB, even the files of the same kind will be sent separately.
· The case name will be as follows: <TG-2000A><Building name><File type><Date><Mail number/Total number of mails>.
· Do not send mails to the TG-2000A address.
· The file to be attached is compressed into a ZIP file (file name: TG-2000_Data.zip).

8.4　Site Name Set-up

Set the site name which this integrated centralized control software TG-2000A is installed.

Set the site name.

[Procedure]

1) Click the [Site name set-up] button.

Click the [Site name set-up] button in the User Set-up Group in the Initial window.

2) Enter the site name.

Enter the name of the site on the site name set-up screen from keyboard.

3) Click the [OK] button.

When finished entering the site name, click the [OK] button.

* Click the [Cancel] button, the site name is left unchanged.
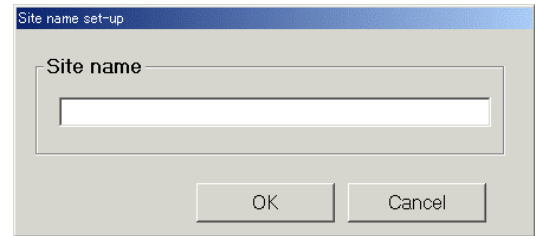
Site Name Set-up

> Note:
> • Site names may contain a maximum of 20 characters. (Single quotations ['] cannot be used.) The site name is reflected upon the start-up screen and version confirmation screen display.

8.5　Password Set-up

The initialization password and maintenance password can be changed.

Change the password.

[Procedure]

1) Click [Password set-up] button.

Click the [Password change] button at the Initial window user setup group. The New password set-up screen appears.

2) Select the target to be changed.

Click and select the target to be changed.

(Password type)

• Initialization password (System administrator password)

• Maintenance password (Maintenance user password)

• Exit password (for quitting TG-2000A from the management screen)

3) Enter the password at New password.

Set the password at New password.

4) Enter the password for verification.

When a new password was set at Step 2), set the same password for verification.

5) Click [OK] button after finishing the setting.

Check the display contents and click the [OK] button.

* When the [Cancel] button is clicked, this setting is terminated to return to the initial window.
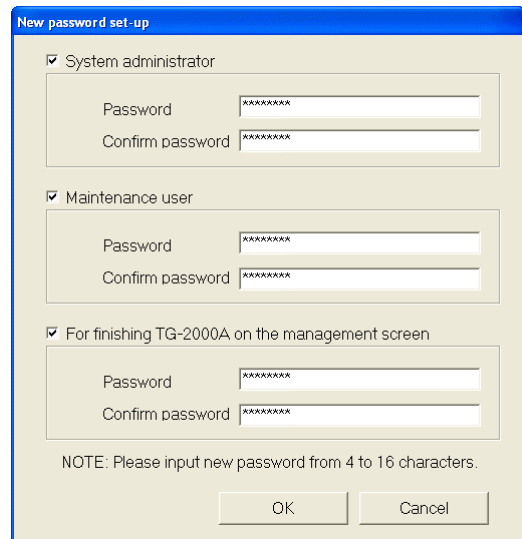
New password set-up screen

> Caution
> • Always memorize the new password. If you forget the password, you cannot open the Initial window.
>
> Note:
> • When the Initial window is opened by initialization password, the Initialization, Maintenance, and Exit password can be changed at the Password change screen. You should not use the same password for these three settings.
> • When the Initial window is opened by maintenance password, only the Maintenance password can be changed at the New password set-up screen.
> • The "Maintenance user" password is used for "Maintenance" on the initial screen, for changing the maintenance user's password, and for "Charge set-up" on the Management screen.

8.6 AG-150A/G-50A Connection Set-up

Set the integrated centralized control softwareTG-2000A, number of AG-150A/G-50A units connected, and the IP address. It is possible for this setting to monitor and display the option functions state of the AG-150A/G-50A.

8.6.1 Setting Procedure and Restrictions

Confirm the precautions and procedure before setting the AG-150A/G-50A connection.

Perform the check before setting the AG-150A/G-50A connection.

[Procedure]
1) Select the [AG-150A/G-50A connection set-up] button.
   Click the [AG-150A/G-50A connection set-up] button located in the system setting group on the initial window.
2) Select the [OK] button after confirming the display contents.
   Check the contents of the alarm displayed. When there are not any problems found, click the [OK] button to advance to the setting.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.

   Set the AG-150A/G-50A connection in accordance with the following procedure.
       Step 1: Number of AG-150A/G-50A set-up
       Step 2: IP address of AG-150A/G-50A set-up

AG-150A/G-50A connection Set-up

8.6.2 Number of AG-150A/G-50A set-up (Step 1)

Set the number of AG-150A/G-50A connected to the system.

Set-up the number of AG-150A/G-50A

[Procedure]
1) Click the "▲/▼ " buttons.
   Use the "▲/▼ " buttons to set the number of AG-150A/G-50A.
   * Values can also be input from the keyboard.
   Number of connectable G-50A units: 1 to 40 units
2) Click [OK] button.
   When finished making settings, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.
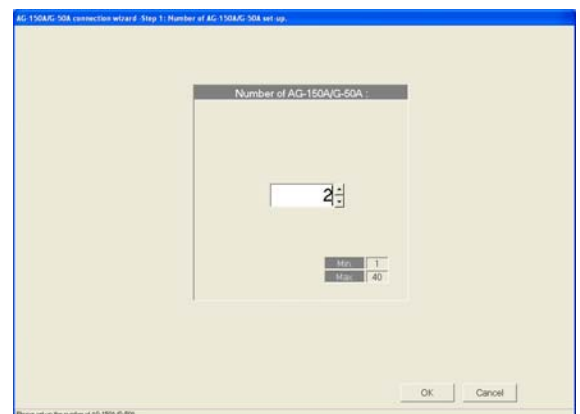
Number of AG-150A/G-50A Set-up

8.6.3 IP address of AG-150A/G-50A set-up (Step 2)

Set the data of the AG-150A/G-50A IP address connected to the data of the integrated centralized control software.

Register the AG-150A/G-50A IP address.

[Procedure]
1) Select the AG-150A/G-50A No. with the "▲/▼ " buttons.
   In this case, use the "▲/▼ " buttons to select the AG-150A/G-50A No. for which the IP address information is registered.
2) Set the IP address.
   Input the IP address for the number of AG-150A/G-50A units to be connected.
   Set the IP address for the number of AG-150A/G-50A units connected.
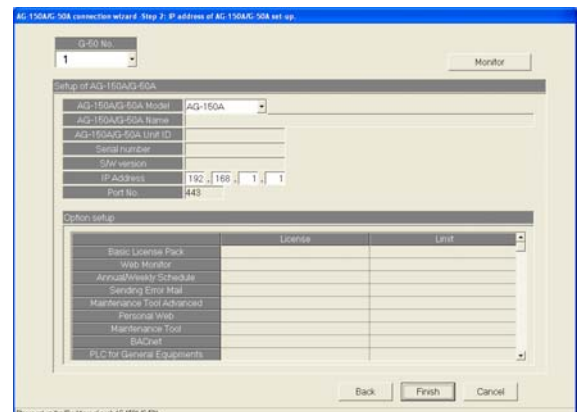
IP address of AG-150A/G-50A set-up

3) After completing the setting, press the [OK] button.
   After fully completing the IP address set-up for the AG-150A/G-50A units, set the [OK] button, by which the G-50A connection setting is completed.
   *   When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.

Note:
   •   It is necessary to set the IP address for the AG-150A/G-50A using the AG-150A/G-50A main unit, initial setting Web or initial setting tool.

Monitor the option function usage state and AG-150A/G-50A's version and serial No.
[Procedure]
1) Select the AG-150A/G-50A No.
   Select the AG-150A/G-50A No. desired to monitor the optional function used with the "▲/▼" buttons.
2) Select the [Monitor] button.
   When the [Monitor] button located on the IP address screen of the AG-150A/G-50A is clicked, the result is displayed.

AG-150A/G-50A select button
AG-150A/G-50A No. can be selected.

Each AG-150A/G-50A setting and display
AG-150A/G-50A name, installation place, serial No. and version can be displayed. IP addresses can be registered in TG-2000A.

Monitor button
AG-150A/G-50A optional function and version information can be monitored.

Option setting display
Usage state and term of AG-150A/G-50A optional function are displayed.

Note:
   •   It is possible to monitor the optional function of the AG-150A/G-50A and to confirm whether the license desired to be used for the integrated software TG-2000A is registered (exists).

Web monitor (Monitor/Operation)	: Required when the monitor operation is executed, using this TG-2000A and the Web.
Annual/weekly schedule (Schedule)	: Required when the schedule setting is used.
Charge (Charge calculation)	: Required when the Charge calculation (charging function) is used. (It is also required when the operation time is used.)
Energy saving	: Required when the energy saving function is used.
Peak cut	: Required when the peak cut function is used.
Personal browser	: Required when the personal browser function is used.
Sending error mail (Mail)	: Required when the error mail addressing is used. (It is prepared for service maintenance.)
PLC for general equipment	:Required when the PLC for general equipment Ver. 2 is used.

   •   Register the license number for the AG-150A/G-50A's optional functions from AG-150A LCD or the Initial setting Web.
   •   Unless the AG-150A license for "web monitor" is registered, TG-2000A will not be able to communicate with the AG-150A.

8.7 System Configuration Set-up

Set the information of the air-conditioning system to be monitored using this integrated centralized control software TG-2000A. It is possible for this setting to monitor the system information possessed by the AG-150A/G-50A.

8.7.1 Setting Procedure and Restrictions

Confirm the precautions and procedure before setting the system configuration.

Perform the confirmation before setting the system configuration.

[Procedure]

1) Select the [System configuration set-up] button.
   Click the [System configuration set-up] button located in the system setting group on the initial window.

2) Select the [OK] button after confirming the display contents.
   Check the contents of the alarm displayed. When there are not any problems found, click the [OK] button to advance to the setting.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.

   Execute the System configuration set-up in accordance with the following procedure.
   Step 1: AG-150A/G-50A data collection
   Step 2: Unit composition of AG-150A/G-50A
   Step 3: Set-up of refrigerant system
   Step 4: Set-up of group
   Step 5: Interlocked setting
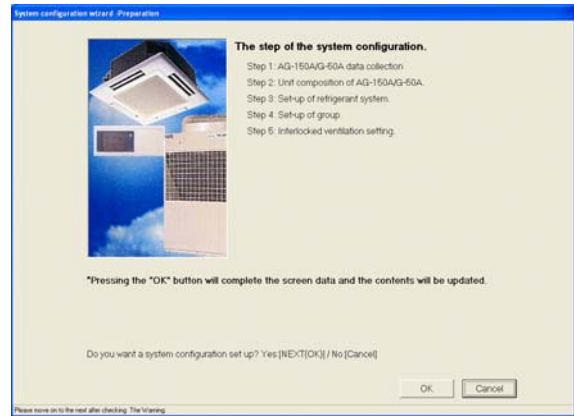
Preparation screen

8.7.2 AG-150A/G-50A data collection (Step 1)

It is possible to collect the system information (group information, interlocking ventilation unit setting information, etc.) set for the AG-150A/G-50A with the integrated centralized control software TG-2000A during the initial setting.

Caution:
- Note that using the AG-150A/G-50A data collecting function may cause the system information possessed in theTG-2000A to be cleared. The AG-150A/G-50A information is overwritten when the information is collected, so make the initial settings again (schedule, charge, peak cut or etc.).
- It can only collect the information when the AG-150A/G-50A units are connected.
- It is recommended to execute this function after the test operation of the air conditioner and the AG-150A/G-50A have been completed normally.

Collect the information from the AG-150A/G-50A during the initial setting.
(* Carry this step out only for the first initialization.)

[Procedure]

1) Select the [Collecting of information from AG-150A/G-50A] button.
   To collect the system information from the AG-150A/G-50A during the initial setting, select AG-150A/G-50A, and click the [Collecting of information from AG-150A/G-50A] button. After completing the information collecting, the operation advances automatically to the next step. Wait a moment, as it takes time for information collecting.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.
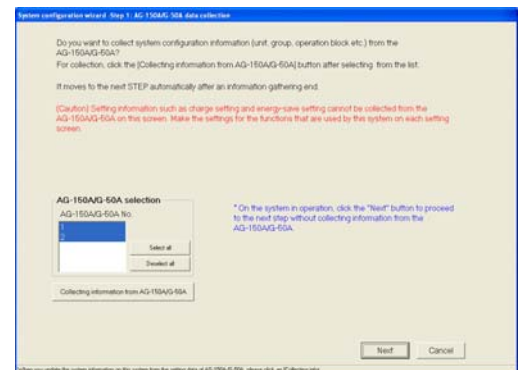
AG-150A/G-50A Data collection screen

Skip the collecting information from the AG-150A/G-50A.

[Procedure]

1) Select the [Next] button.
   If it is not necessary to collect the information, click the [Next] button.

8.7.3 Unit composition set-up (Step 2)

It is possible to confirm and change the configuration of the unit in each AG-150A/G-50A.

AG-150A/G-50A Selection :
Select the AG-150/G-50A No.

Unit configura - tion table:
Displays the system configuration unit of the AG-150A/G-50A concerned.

Selected unit icon :
Displays the icons (symbols) such as the indoor unit, outdoor unit, remote controller, system remote controller, etc. and their names.

Unit configuration address setting

Confirm the unit configuration.

[Procedure]

1) Select the AG-150A/G-50A No. with the "▲/▼" buttons.

In this case, use the "▲/▼" buttons to select the AG-150A/G-50A No. desired to confirm the unit configuration.

2) Select the [OK] button after checking the unit configuration of each AG-150A/G-50A.

If it is not necessary to change the unit configuration of each AG-150A/G-50A when it is checked, click the [OK] button. *When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

※In the case of DIDO controller(DC)

When the address setting is completed, the contact number screen will appear.
Check the checkbox corresponding to the contact number to be used.

※Contact number is used as a number for general equipment connecting to DC.
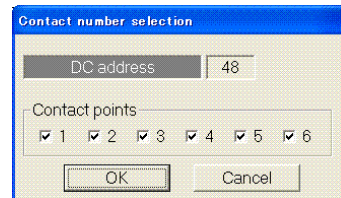
Contact Number Selection screen

※In the case of PI controller (MCT)

When the address setting is completed, the channel number selection screen will appear.
Check the checkbox corresponding to the channel number to be used.
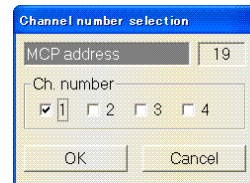
Channel Number Selection screen

Change the unit configuration.

[Procedure]

1) Select the AG-150A/G-50A No. with the "▲/▼ " buttons.

In this case, use the "▲/▼ " buttons to select the AG-150A/G-50A No. desired to change the unit configuration.

2) Delete/add the unit icon.

Unit icon deletion: Click the unit icon to be deleted.

Unit icon addition: Click the unit icon to be added from the selected unit icon column to set it to the selected state.

(The symbol of the selected unit is displayed by the pointer.)

When the address column to be added is clicked, the unit icon is displayed.

Table: Icon symbol and unit name

Icon	Name	Address range
IC *1	Indoor unit	1 to 50
LC	LOSSNAY	
FU	OA processing unit	
KIC	"K" Control Units	
AIC	"A" Control Units	
DC *2	DIDO Controller	
MCT	AI controller	
MCP	PI controller	
OC	Outdoor unit	51 to 100
BC	BC controller (main)	
BS	BC controller (sub)	
OS	Subsidiary outdoor unit	
RC	ME remote controller (compact remote controller) / LOSSNAY remote controller	101 to 200
SC	System controller (Including GR, SR, and AN)	201 to 250
GR	Group remote controller	
SR	System remote controller	
AN	On/Off controller	
KA	K-transmission converter	(201 to 250)
TR	Central controller (MJ-103)	(201 to 250)
G-50	Central controller AG-150A or G-50A	(0, 201 to 250)
??	Unconfirmed unit	(1 to 250)

*1: Two or more addresses may be assigned to some of the large-capacity indoor units.

*2: 1 contact point for DIDO Controller is converted to 1 unit. Up to 50 units are connectable to each AG-150A/G-50A.

3) Select the [OK] button.

After fully completing the unit icon change, click the [OK] button.

Note:
- When the system information is collected from the AG-150A/G-50A, all the SR, GR, and AN display "SC".
  It is possible to change the icon to that of the system controller actually connected. When the icon is changed, it is possible to display the unit in which the error occurred with the type easily discriminated.
- Delete the "??" icon displayed, and set the original icon. Note that it is unable to advance to the next step if the "??" icon exists.
- If the system differs from the actual system, restart the AG-150A/G-50A or check the air conditioner system.

(Supplement)
  When setting unit system configuration for A-control units or K-control units, make the following setting.

(Measures the power consumption of indoor and outdoor units)

WHM for AOC

A-control unit
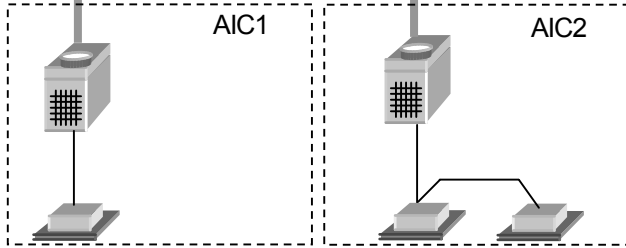
AIC1

AIC2

<Setting>
· **Register AIC1 and AIC2 as indoor units.**
· **Outdoor units cannot be registered.**
· **Refrigerant system cannot be set.**
· **Make group setting.**

Note:
  *The apportioned electric power calculation function cannot calculate the amount of power consumption by each individual air conditioning unit.
  To measure the electric power consumption of each individual A-control unit, install a watt-hour meter for each unit.

<Setting>
· **Register KIC1 and KIC2 as indoor units.**
· **Outdoor units cannot be registered.**
· **Refrigerant system cannot be set.**
· **Make group setting.**

WHM for KOC

K-control unit
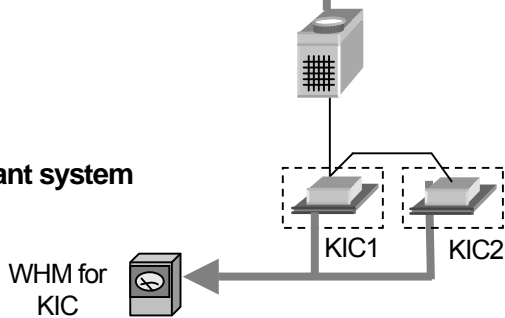
Value of Crank case heater is set separately.
Input capacity to KIC on the screen.
In this case, when KIC is in the same refrigerant system like shown in the right figure, input it to KIC whose address is the smallest.
(Input it only to KIC1 in the right figure.)

KIC1   KIC2

WHM for KIC

AIC: A-control indoor units   AOC: A-control outdoor units
KIC: K-control indoor units   KOC: K-control outdoor units

8.7.4 Set-up of refrigerant system (Step 3)

It is possible to confirm and change the information of the refrigerant system within each AG-150A/G-50A.

AG-150/G-50A Selection:
Select the AG-150A/G-50A No.

Refrigerant System information:
Display the refrigerant system information for the multibuilding.

Unconnected indoor Unit:
Displays the indoor unit and OA processing unit (IC, FU) for Which the refrigerant system connection is not displayed.

Unconnected outdoor Sub-unit:
Displays the OS and BC for which the refrigerant system connection is not displayed.

Confirm the refrigerant system information.

[Procedure]

1) Click the "▲/▼" button to select the AG-150A/G-50A No.
Click the "▲/▼" button to select the AG-150A/G-50A No. for which the unit Model name is to be set.

2) Select the [OK] button after confirming the refrigerant system information.
If it is not necessary to change or correct the refrigerant system information for each AG-150A/ G-50A when it is checked, click the [OK] button.
* When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Change the refrigerant system information.

[Procedure]

1) Select the AG-150A/G-50A No. with the "▲/▼" buttons.
In this case, use the "▲/▼" buttons to select the AG-150A/G-50A No. desired to change the refrigerant system information.

2) Delete/add the unit icon.
    Unit icon deletion: Click the unit icon to be deleted.
    Unit icon addition: Click the unit icon to be added, from the unconnected indoor unit icon and unconnected sub-unit columns to set it to the selected state.
    (The symbol of the selected unit is displayed by the pointer.)
    When the OC column to be added is clicked, the unit icon is displayed.

3) Select the [OK] button.
After fully completing the refrigerant system information changes, click the [OK] button.

Note:
- It cannot change the actual refrigerant system even if the addition or deletion is executed on the refrigerant system setting change screen.
- This refrigerant system information is used for the charge calculation function. When the charge calculation function is used, be sure to execute the setting and confirmation. This refrigerant system information is used for error occurrence display.
- It cannot collect all the refrigerant system information depending on the AG-150A/G-50A start-up state. In this case, execute the addition or change on this refrigerant system setting screen.
- If the display of data collected from the AG-150A/G-50A differs from the actual system, restart the AG-150A/G-50A or check the air conditioner system.
- Setting for A-control and K-control units on the refrigerant system setting change screen is not required.

The information possessed by the integrated software is compared with the AG-150A/G-50A refrigerant information when the integrated centralized control software TG-2000A starts to display the coincidence or error message of caution in the event of no reception when this refrigerant system setting change screen is selected.

8.7.5 Set-up of group (Step 4)

It is possible to confirm and change the group information of the indoor unit and ventilation unit within each AG-150A/G-50A.

Number of connected AG-150A/G-50A units:
Indicates the number of AG-150A/ G-50A units connected.

AG-150/G-50A Selection:
Select the AG-150A/G-50A No.

Group No.:
Displays the group No.

Unconnected indoor unit:
Displays the indoor unit, LOSSNAY (IC, KIC, AIC, LC, DC) not set for the group.

Group information:
Displays the group configuration of the indoor unit or ventilation unit.

Unconnected remote Controller:
Displays the SC, GR, SR, AN, and RC which can be set for the group.

Confirm the group information.
[Procedure]
1) Click the "▲/▼" button to select AG-150A/G-50A No.
   Select the AG-150A/G-50A No. to be assigned using the "▲/▼" buttons.
2) Select the [OK] button after confirming the group information.
   If it is not necessary to change or correct the information of each AG-150A/G-50A when it is checked, click the [OK] button.
   *   When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Change the group information.
[Procedure]
1) Click the "▲/▼" button to select AG-150A/G-50A No.
   Select the AG-150A/G-50A No. to be assigned using the "▲/▼" buttons.
2) Delete/add the unit icon.
   Unit icon deletion: Click the unit icon to be deleted.
   Unit icon addition: Click the unit icon to be added, from the Unconnected indoor unit and Unconnected remote controller columns to set it to the selected state.
                        (The symbol of the selected unit is displayed by the pointer.)
                        When the group column to be added is clicked, the unit icon is displayed.
3) Select the [OK] button.
   After fully completing the group information changes, click the [OK] button.

Note:
- When the group setting change screen is changed, it is possible to reflect the changed contents on the AG-150A/G-50A system.
- It cannot set the indoor unit (M-NET type), K-control unit, A-control unit, DIDO controller and LOSSNAY for the same group.
- Since the number of groups and the number of indoor units connectable to the GR, SR, and AN is limited, set the group corresponding with such limitations.
- DC (DIDO controller) cannot connect with RC, GR, SR, AN and SC.

This group setting screen displays the number of groups and number of indoor units which allow the GR, SR, AN, and SC to be newly organized.

Table: Number of management groups and number of indoor units

Symbol	Equipment name	Number of management groups and number of indoor units
GR	Group remote controller	8 groups, 16 indoor units
SR	System remote controller	50 groups, 50 indoor units
AN	ON/OFF remote controller	16 groups, 50 indoor units
SC	System controller	50 groups, 50 indoor units

Note:
- This group setting screen displays the number of management groups and number of indoor units for the system controller (GR, SR, AN, SC) limited when the group is newly organized.
- It is possible to use the group organization as it is, which is collected from the AG-150A/G-50A. On/off controller (AN), etc., for instance

Change the group No.

[Procedure]

1) Select the cell of the group No. displayed.
   Click the cell desired to change the group No., and the group No. change screen is displayed.

2) Change the group No.
   Use the keyboard to input the group No. to change.
   * Group No. setting range: 1 to 50

3) Select the [OK] button.
   Click the [OK] button after changing the group No.
   If there is a duplicated group No., an error message is displayed.

Group number change
Group No.
1 - [1]
OK   Cancel

Warning
⚠ The inputted group number is already used into other groups.
OK
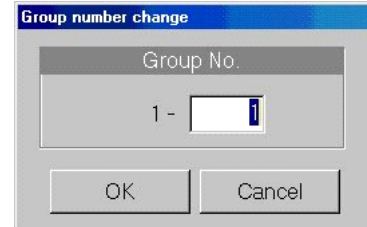
Note:
- This function is used to change groups in which a sub system controller (GR, SR, AN, SC) is selected. The group remote controller, system remote controller and ON/OFF remote controller can control the groups that can be set with the address 200 value.

8.7.6 Interlocked setting (Step 5)

It is possible to confirm and change the information of ventilation unit interlocked with indoor unit in each AG-150A/G-50A.
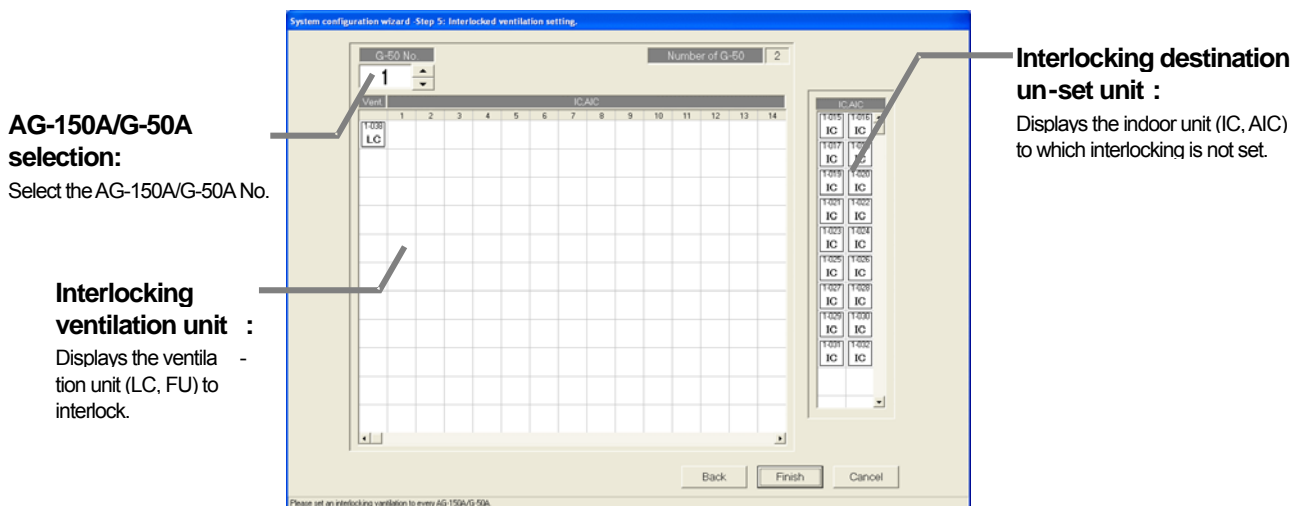
AG-150A/G-50A selection:
Select the AG-150A/G-50A No.

Interlocking ventilation unit :
Displays the ventilation unit (LC, FU) to interlock.

Interlocking destination un-set unit :
Displays the indoor unit (IC, AIC) to which interlocking is not set.

Confirm the ventilation unit interlocking set-up information.

[Procedure]

1) Select the No. of AG-150A/G-50A with "▲/▼" button.
   In this case, select the No. of AG-150A/G-50A to confirm the ventilation unit interlocking set-up information with the "▲/▼" button.

2) Select the [OK] button after confirming the ventilation unit interlocking information.
   If it is not necessary to change or correct the information of each AG-150A/G-50A when it is checked, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Change the ventilation unit interlocking set-up information.

[Procedure]

1) Select the No. of AG-150A/G-50A with "▲/▼" button.
   In this case, select the No. of AG-150A/G-50A to change the ventilation unit interlocking setting with the "▲/▼" button.

2) Delete/add the unit icon.
   Unit icon deletion: Click the unit icon to be deleted.
   Unit icon addition: Click the unit icon to be added, from the Interlocking destination un-set unit columns to set it to the selected state.
   (The symbol of the selected unit is displayed by the pointer.)
   When the interlocking ventilation unit display line to be added is clicked, the unit icon is displayed.

3) Select [OK] button.
   Click the [OK] button after fully completing the ventilation unit interlocking setting.

Note:
- When the ventilation unit interlocking setting is changed on the interlocked setting screen, it is possible to reflect the changed contents on the AG-150A/G-50A system.
- It is possible to set up to 16 indoor units to one interlocking ventilation unit.
- When the [OK] button is clicked, the screen to confirm whether the ventilation unit interlocking setting is completed, is displayed.

8.8　Set-up DIDO, AI and PI controller

Setting up each function of DIDO controller, AI controller and PI controller.

8.8.1　Setting Procedure and Restrictions

Check the setting procedure and restrictions before setting-up DIDO controller, AI controller and PI controller.

［Operation Method］
1) Click the [DIDO,AI,PI controller set-up] button.
   Click the [DIDO,AI,PI controller set-up] button from system setting group in the initial window.
2) Read the message that appears and click the [OK] button.
   Read the warning message on the preparation screen.
   ※　Click the [Cancel] button to cancel the procedure and
   　　return to the initial window.

Procedure of setting-up DIDO, AI and PI controller.
　　Step 1　　DIDO controller (General equipment) setting
　　Step 2　　AI controller setting
　　Step 3　　PI controller (Meter) setting

Preparation screen

8.8.2　DIDO controller(general equipment) set-up （Step 1）

Set-up function of DIDO controller (DC)

［Operation Method］
1) Select AG-150A/G-50 No. with the　▲/▼　button.
   Select AG-150A/G-50A No. connected to DC with
   the ▲/▼　button.

2) Set-up the detail of general equipment(DC)
   Select the general equipment (DC)
   Detail setting screen will appear. Please make the settings bellow.

   Group name　　　: Short name (8 characters or less)

   　　　　　　　　　 Full name (20 characters or less)
   Allow Operation: the operate restriction of the general
   　　　　　　　　　equipment setting
   　　Select an option from the following to reflect or not
   　　reflect the on/off status change when a batch
   　　operation is performed.
   　　Check the radio button next to [In batch and on individual
   　　group] to reflect the on/off status. Check the radio
   　　button next to [On individual group] to reflect the change
   　　on certain groups. Check the radio button next to
   　　[No operations (Monitor only)] for the change not to be
   　　reflected.
   Monitor　　　　　: the state indicate of general
   　　　　　　　　　　equipment setting.
   　　Either the output status to the general equipment or
   　　input from the general equipment can be selected for
   　　the on/off status that appears on the monitor screen.

3) Click the [OK] button.
   When the setting is completed, click the [OK] button.
   　※Click the [Cancel] button to cancel the procedure and return to the initial
   　　window.
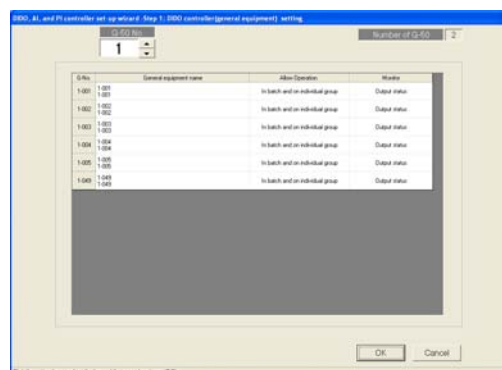
DC (general equipment) Setting screen
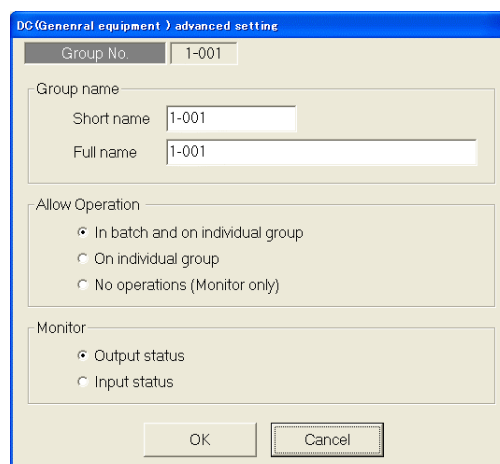
DC (general equipment)
advanced setting screen

72

8.8.3 AI controller Set-up（Step 2）

Set-up the function of the AI controller (MCT)

［Operation Method］

1) Select AG-150A/G-50 No. with　the ▲/▼ button.
   Select a AG-150A/G-50A No. connected to AI Controller
   (MCT) with the ▲/▼ button.

2) Set-up the detail of measuring instrumentation.
   Select the measuring instrumentation.
   Detail setting screen will appear. Make the setting for the
   following items.

   Sensor name : Short name (8 characters or less)
   　　　　　　　　Full name (20 characters or less)

   Sensor type 　: no use (the sensor is not used)
   　　　　　　　Temperature (the temperature sensor
   　　　　　　　　　is used)
   　　　　　　　Humidity (the humidity sensor is used)

   Measurable range: In the case of selecting temperature,
   　　　　　　　the range should be –100°C to 100°C
   　　　　　　　(-148°F to 212°F).
   　　　　　　　In the case of selecting humidity,
   　　　　　　　the range should be 0% to 100%.
   　　　　　　　* Warning appears when the range
   　　　　　　　　is incorrect.

MCT setting screen

MCT advanced setting screen

Setting for upper limit alarm：check the checkbox then enter the arbitrary value within the range.
　　　　　　　　　　　　* warning indicates when the range is incorrect

Setting for lower limit alarm：check the checkbox then input the arbitrary range within the limits.
　　　　　　　　　　　　* warning indicates when the range is incorrect

Note:
- When the setting value exceed the "upper linit alarm" or "lower limit alarm", the AI contoller icon
  will turn orange.
- AG-150A/G-50A has the function of reporting the "upper linit alarm" or "lower limit alarm" by email.

---

3) To correct the measurement value
   If corrections need to be made for the measurement data, offset values
   can be set in the screen on the right.
   Click the Offset button on MCT advanced setting screen.
   Measured value correction screen will appear.
   Please set the Offset value or Display. (Offset value and Display are
   interlocked.)

   Offset value : The value can be set at 0.1 increments within the range of
   　　　　　　-10.0～+10.0.
   Display 　　: Based on the measured value, the value can be set at 0.1
   　　　　　　increments within the range of –10.0～+10.0.
   　　*Measured value and display value will not appear at the initial setting
   　　because there is no record.

Measurement value
correction screen
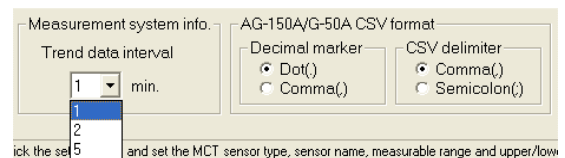
4) Set-up the measuring system information.
   Setting for the interval to get the trend data.
   Please select the value from 1/2/5 with the ▼ button.

5) Set-up the CSV form of AG-150A/G-50A.

    Setting the unit of measure and delimiter for CSV.

    Decimal point   : dot or comma.

    CSV delimiter   : comma or semi-colon.

    * If comma is selected as the decimal delimiter, semicolon will automatically be selected as the CSV delimiter (fixed).

      If comma is selected as the CSV delimiter, period will automatically be selected as the decimal delimiter (fixed).

6) Click the ［OK］ button.

    When the setting is completed, click the ［OK］ button.

      ※Click the ［Cancel］ button to cancel this procedure and return to the initial window.

8.8.4 PI controller (Meter) Set-up (Step 3)

Set-up the PI controller (MCP) function

［Operation Method］

1) Select AG-150A/G-50A No. with the ▲/▼ button.

    Select AG-150A/G-50A No. connected to PI Controller with the ▲/▼ button.

2) Set-up the detail of measurement

    Click the measurement to make a setting.

    The screen of measurement will appear and make the settings below.

    Usage type: Select one from Air conditioner/Electricity1/ Electricity2/Gas/Water/Heat/Other.

    Measurement name: 20 characters or less.

    Placement: 20 characters or less.

    Pulse: Set the value of measurement per pulse (kWh etc.) within the rang of 0.01～100.00.
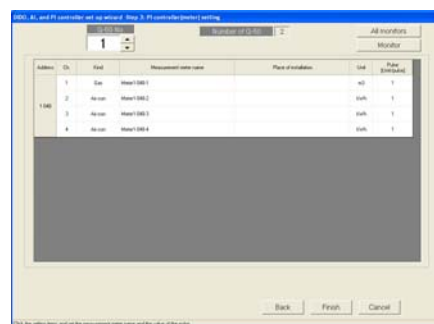
MCP setting screen
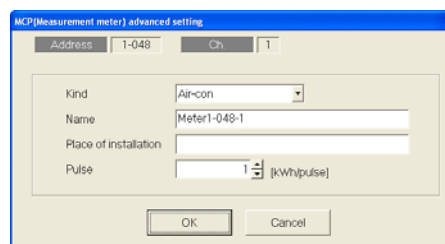
MCP advanced setting screen

    The pulse setting of the PI controller that is registered to the AG-150A/G-50A can be monitored.

    Press the [All monitors] button to monitor all AG-150A/G-50A units, and press the [Monitor] button to monitor only the selected AG-150A/G-50A unit. The acquired information will appear on the "PI controller (meter)" screen. (The pulse setting of the PI controller that has not been registered to TG-2000A cannot be monitored.)

3) Click the [OK] button.

    When the setting is completed, click the ［OK］ button.

      * Click the ［Cancel］ button to cancel the procedure and return to the initial window.

Note:
- Always set the meter pulse unit. If not set, the cumulative usage amount will not be correctly measured and the charging function will not work properly.
- When using the Measurement Meter, give a test run for proper period to check the finite difference of the value measured by the meter matches monitor value.
- Check that the dipswitches for the channel that is used by the PI controller are set as follows: "Use of input contact : Yes"; "Pulse unit (weight) value setting: SC setting".

    If "Use of input contact" is set to any setting other than "Yes," pulse input to the PI controller will be invalid and pulse count cannot be taken.

    If "Pulse unit (weight) value setting" is set to a setting other than "SC setting," the pulse setting from TG-2000A will be invalid, and the PI controller's dipswitch setting will override the TG-2000A's setting.

    Refer to the PI controller Installation/Instruction Manual for how to set the dipswitches of the PI controller.
- Use a watt-hour meter with the pulse size of 1 kWh or below to measure the apportioned electric power.

8.9 PLC for general equipment set-up

Set the functions for the PLC for general equipment, and information on the general equipment connected to the PLC for general equipment monitored by this integrated software TG-2000A.

8.9.1 Setting Procedure and Restrictions

Before setting the PLC for general equipment, check the precautions.

[Procedure]

1) Click the [PLC for general equipment Set-up] button.
   From the initial window, click the [PLC for general equipment Set-up] button in the System Settings group.

2) Click the [OK] button after checking the display contents.
   Check the details displayed in the warning, and then click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

   The PLC for general equipment is set in the following order.
   Step 1   Number of PLC unit set-up
   Step 2   PLC set-up and initial setting
   Step 3   Function setting
   Step 4   Advanced setting (air conditioner status monitor setting)
   Step 5   Advanced setting (peak cut function setting)
   Step 6   General equipment set-up
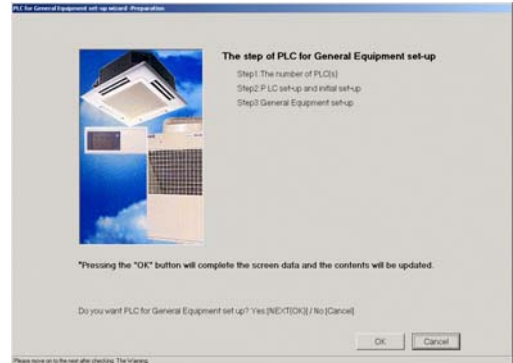
Preparation screen

8.9.2 Number of PLC unit set-up (Step 1)

Set the number of connected PLC units.

[Procedure]

1) Select the number of connected PLC units.
   Select the number of connected PLC units by clicking "▲/▼" button.
   Number of connected units: 1 to 20 units
   * This value can be input from the keyboard.

2) Click the [OK] button.
   After making the settings, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Number of unit set-up buttons
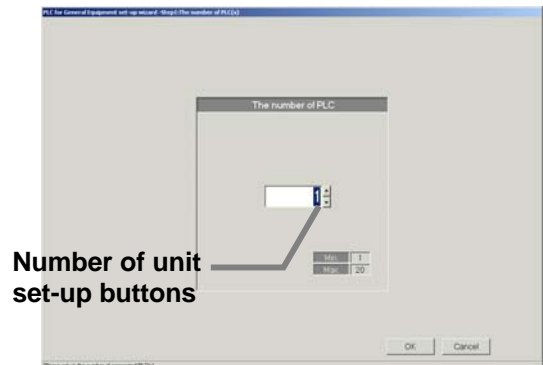
Number of PLC unit set-up screen

8.9.3　PLC set-up and initial setting (Step 2)

Set the PLC IP address.

[Procedure]

1) Select the PLC No.

Select the No. of the PLC for which the IP address is to be set by clicking the "▼" button.

2) Set the IP address

Register the PLC IP address in the integrated software.

* The IP address is set in the PLC using the PLC.
* Recommended IP address: 192.168.1.171 to 190

Set the IP address for all connected PLC for general equipments by repeating steps 1) and 2).

Monitor the PLC version

[Procedure]

1) Select the PLC No.

Select the PLC No. by clicking the "▼" button.

2) Select the [Monitor] button.

Click the [Monitor] button in the PLC Connection Set-up window. The PLC software type and version are monitored and the results appear.

* A warning message appears if the address setting or communication confirmation fails. Check the setting details.
* Proper communication can be confirmed with the PLC version monitor.

Monitor button

Initial request button

PLC connection set-up screen

Test run button
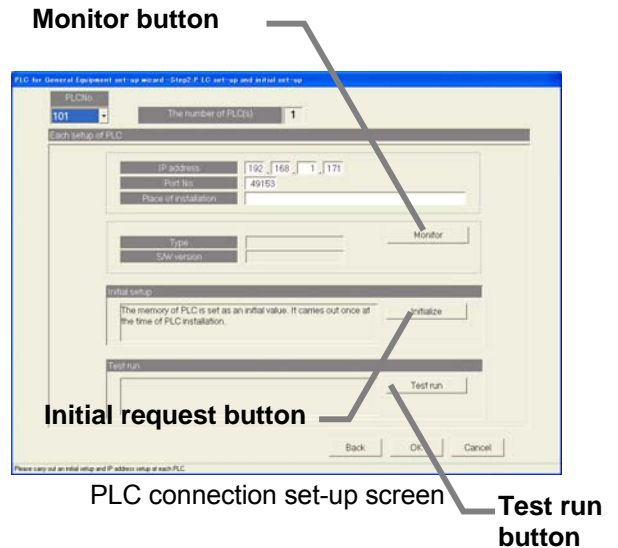
Initialize the PLC

[Procedure]

1) Select the PLC No.

Select the PLC No. by clicking the "▼" button.

2) Select the [Initial Setting] button.

When the [Initial Request] button on the PLC Connection Set-up screen is clicked, the PLC memory is initialized so that it can be used.

Note:
* All settings are initialized when the PLC is initialized, and all data are erased. **This "Initial Setting" must be carried out only once when initially setting the PLC.**
  If this is executed during operation, the general equipment's control data will also be cleared and the system will not operate correctly.

Setting the PLC to the trial operation mode

Use this to run the PLC for general equipment temporarily when the "PLC for general equipment" license is not registered in the AG-150A/G-50A.

[Procedure]

1) Select the PLC No.

Select the PLC No. by clicking the "▼" button.

2) Select the [Test run] button.

When the [Test run] button on the PLC Connection Set-up screen is clicked, the PLC will run in the trial operation mode.

The operation mode display will change to " Test run Mode" while the PLC is running in the trial operation mode. "Normal Mode" is displayed when the PLC is not in the trial operation mode.

Note:
* The PLC " Test run Mode" will automatically change to the "Normal Mode" on the next day.

Close the PLC Connection Set-up screen

[Procedure]

1) After making all of the settings, select the [OK] button.

* When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

8.9.4 Function setting (Step 3)

Setting the PLC function

[Procedure]

1) Set the function.

   Select the function to be used with each PLC.

2) Select the [OK] after making the setting.

> Note:
> - The air conditioner status monitor function and peak cut function cannot be set for the same PLC.
>   Similarly, the general equipment status monitor function and peak cut function cannot be set for the same PLC.
> - "Air-conditioner state monitoring function" includes the monitoring function of the general equipment connected to the indoor unit free contact points, and the interlock control function.
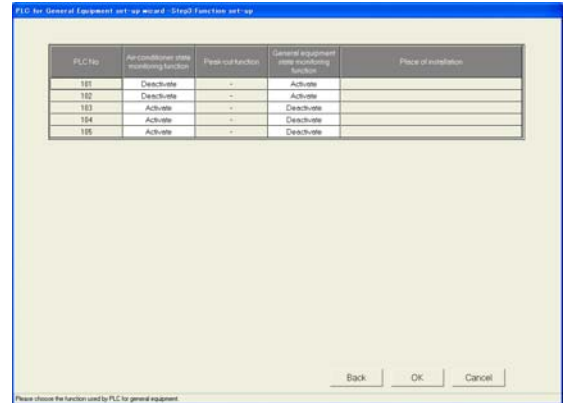
* When interlocking control is performed, "Air-conditioner state monitoring function" must be set to "Activate".

8.9.5 Advanced setting (air conditioner status monitor setting) (Step 4)

Setting the AG-150A/G-50A for air conditioner status monitor

[Procedure]

1) Select the PLC No.

   Select the PLC No. by clicking the "▼" button.

2) Select the AG-150A/G-50A No. to be monitored.

   Select the No. of the AG-150A./G-50A to be monitored by each PLC.

   * If a PLC for which air conditioner status monitor is not selected in Step 3, the message "This function cannot be used." will appear. To use this function, return to the previous screen and set the functions again.

> Note:
> - To enable the interlock control, AG-150A/G-50A to be monitored must be set even if a PLC is not interlocked with an air-conditioner.
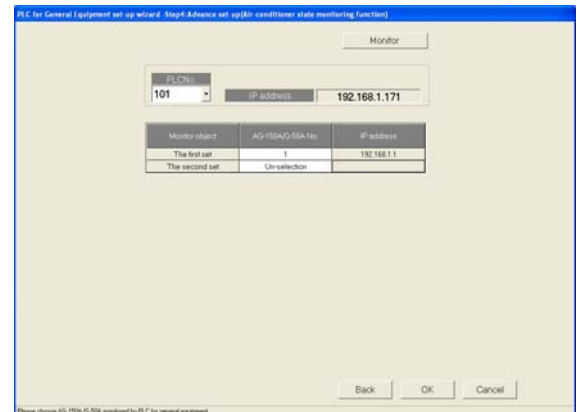
When checking the set value for PLC, press the monitor button.

8.9.6 Advanced setting (Peak cut function setting) (Step 5)

Set the AG-150A/G-50A for peak cut operations

[Procedure]

1) Select the PLC No.

   Select the PLC No. by clicking the "▼" button.

2) Select the AG-150A/G-50A No. to be monitored.

   Select the AG-150A/G-50A for peak cut operation with each PLC.

   * If a PLC for which peak cut is not selected in Step 3, the message "This function cannot be used." will appear. To use this function, return to the Step 3 and set the functions again.

> Note:
> - With this screen, the equipment for which the peak cut function is enabled by connecting a demand controller to the PLC for general equipment is set.
>   Set the control details of the peak cut function with the energy saving/peak cut settings in section 8.17.
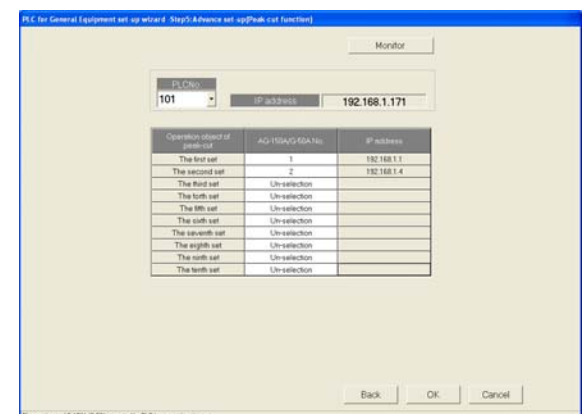
8.9.7 General equipment setting (Step 6)

PLC No. selection
Select the PLC.

General equipment button
Set the general equipment. The menu contains Change, Copy and Paste.

Select button
Select the presence of general equipments.
■: Selected (present)
□: Not selected (absent)
* No. 1**-033 or higher cannot be selected.

Number of connected PLCs
The number of PLC units connected is displayed.

Number of set general equipments
The number of set general equipments is displayed.

Function display
The functions for the set general equipment are displayed.

General equipment Set-up screen

Set the general equipment's address, functions and name
[Procedure]
1) Select the PLC No. by clicking the "▼" button.
   Select the PLC No. to be used by clicking the "▼" button.
   * PLC refers to the programmable logic controller.
2) Click the box in the selection field.
   ■: Selected
   □: Not selected
   * Use only general equipment No. 1**-1 to 32.

Opt.	Address	General Equipment name (Short name/Full name)
■	101-1	101-1 / 101-1
■	101-2	101-2 / 101-2
■	101-3	101-3 / 101-3

General equipment Set-up screen

3) Set the name, functions and display details.
   Set the following items on the General equipment Details Set-up window.
   Device name (short name, full name)
   Operation setting (operation, schedule)
   Operation display (display characters, monitor selection)
   Error and warning status display (display characters, color selection)

General equipment address
Displays the general equipment's address.

Device name setting
Sets the general equipment's name (short name, full name)。

Operation setting
Sets the functions for the general equipment's operation setting.
• Operation
• Schedule

Setting the use of previous version icon
Set the use of the previous icon on the administration screen.

Error and warning status display setting
Set the validity of the general equipment's error display, and the display characters.
* Only error display No. 1 can be used.

OK button
Click on the [OK] button after setting the general equipment functions.

General equipment Details Set-up screen

78

4) After making all of the settings, select the [OK] button.
   * If the [Cancel] button is clicked, the settings are canceled and the General equipment Set-up screen opens.
5) After setting all of the general equipments, select the [OK] button.
   * If the [Cancel] button is clicked, the settings are canceled and the General equipment Set-up screen opens.

Note:
- Up to 20 characters can be input for the general equipment's full name.
  (Short name: up to 8 characters.)
- Up to 8 characters can be input for the operation, stop and error display characters.
- Single quotations (') cannot be used in the name or display characters.
- Up to eight general equipment units (addresses 1 to 8) can be connected to one PLC.
- Only "The number of abnormalities 1" in the Abnormalities/warning state can be used for one general equipment.
- The schedule function can not be selected in TG-2000A of Ver. 4.10.
- The function of general equipment can be selected the following item.
      Operation, operation display and abnormalities/warning status
      Operation and operation display
      Operation
      Abnormalities/warning status
- The general equipment's operation setting and display functions should be set to "Operate" and "It is updated automatically.". If "It is updated from TG-2000A only." is used, the screen display and actual general equipment state may not match.

Change the general equipment settings
[Procedure]
1) Select the general equipment No.
   Click the general equipment No. to be changed. A submenu opens.
2) Select the [Change] button.
   When [Change] is selected from the submenu, the General equipment Details Set-up window opens.
3) Set the details to be changed.
   Set the details to be changed on the General equipment Details Set-up window.
4) After making all of the settings, select the [OK] button.
   * If the [Cancel] button is clicked, the settings are canceled and the General equipment Set-up screen opens.

Copy the general equipment functions
[Procedure]
1) Select the general equipment No.
   Click the general equipment No. to be changed. A submenu opens.
2) Select the [Copy] button.
   When [Copy] is selected from the submenu, the details set for the general equipment are copied.
3) Click the general equipment No., and select [Paste]
   Click the general equipment No. into which the details are to be pasted, and then select [Paste]. The set details are reflected onto the General equipment Set-up screen.
   * The general equipment's name is also copied, so change it on the General equipment Details Set-up screen.

79

8.10 IC I/O Signal Set-up

Set the information on the general equipment connected to the IC I/O signal monitored with this integrated software TG-2000A.

Notes

To use the free contact on the indoor unit, it must be enabled by switching the dipswitches on the indoor unit. Make the settings by following the table below.

The indoor units of R410A compatible models or R407C compatible models ver. 33 or later (*1) have a free contact.

*The version can be checked in the indoor unit version display on the maintenance tool.

Function	Switch setting			Other functions		Notes
Free contact	SW1-10	SW1-9	SW1-5	Power start/stop & auto recovery from power failure	Remote display switch	Notes
Enabled	ON	ON	ON	Auto recovery from power failure	Disabled	Different from the old switch settings.
			OFF	Disabled		
Disabled	ON	OFF	ON	Power start/stop	Thermo ON signal display	Same as the old switch settings.
			OFF		Fan output display	
	OFF	ON	ON	Auto recovery from power failure	Thermo ON signal display	
			OFF		Fan output display	
		OFF	ON OFF	Disabled	Thermo ON signal display	
					Fan output display	

(Reference) On the models before the ones with a free contact, the following switches are used to configure the following settings: SW1-5: Remote display switch, SW1-9: Auto recovery after power failure, SW1-10 Power start/stop.

If the free contact function on the indoor unit is enabled, other functions on the external input/output CN32, CN51, and CN52 (except operation status output and abnormality output on CN51) will be disabled.

8.10.1 Setting Procedure and Restrictions

Confirm the precautions and procedure before setting the IC I/O signal.

[Procedure]

1) Select the [IC I/O Signal Set-up] button.
   Click on the [IC I/O Signal Set-up] button located in the system setting group on the initial window.

2) Select the [OK] button after confirming the display contents.
   If any alarms appear on the preparation screen, check whether there are any problems.

   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

   The IC I/O signal is set with the following steps.
   Step 1 : General equipment set-up
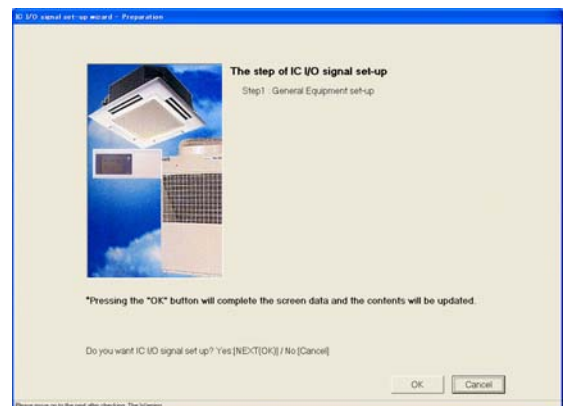
Preparation screen

8.10.2 General Equipment Set-up (Step 1)

General equipment button
The general equipment can be set. The menu includes Change, Copy and Paste.

Selection button
Select whether the general equipment is present.
■: Selected (Present)
□: Not selected (Not present)

Jump button
When clicked on after inputting the general equipment No. (1 to 2000), the line will jump to that No.

No. of set general equipment units
Display the No. of set general equipment units.

Function display
Display the set general equipment functions.

General equipment set-up screen

Set the general equipment address, function and name.
[Procedure]
1) Click on the box □ in the selection field.

- ■ : Selected

- □ : Not selected

   * **The number of general equipment units that can be set differs according to the number of G-50A units. The maximum number is 2000 units.**

Note:
• When PLC for general equipment (Ver.2 or later) is not connected, this function cannot be used.

General Equipment number
The general equipment number is displayed.

General Equipment Name setting
Set the general equipment name (short name, full name).

Input-and-output setup
Set the input/output contact to be used. Also set the display characters and display color.

Select button
Click to set the contact No.

OK button
Click the [OK] button after setting the general equipment functions.

General equipment details setting screen

2) Set the name.
Set the full name and short name at the General Equipment Name setting.

3) Set the input/output.
   Set the input/output used at the Contact setting.
4) Set the contact No.
   Set the contact No. used at the Contact setting.
   Select the [Select] button.
   The Contact Setting screen will appear. The contact
   No. will appear when the ⊞ mark at the indoor unit
   address is clicked. Click on the contact No. to be
   used, and select the [OK] button.
5) Set the display characters and display color.
   Set the display characters and colors used for the
   icon at Contact Setting.
6) Select the [OK] button after completing the settings.
   * When the [Cancel] button is clicked, this setting is terminated to
     return to the General equipment set-up screen.
7) Select the [OK] button after completing the all general
   equipment settings.
   * When the [Cancel] button is clicked, this setting is terminated to
     return to the initial window. The default value is set when
     new.
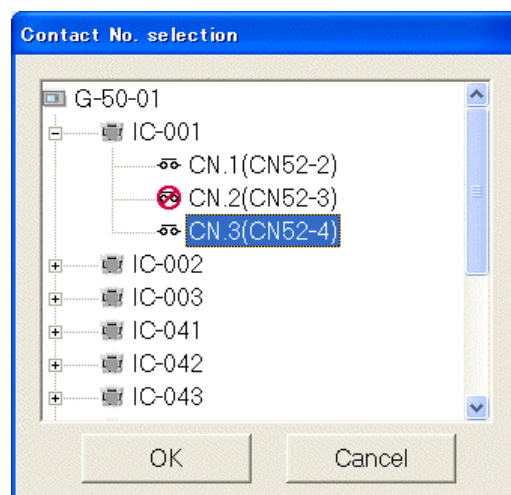
Note:
   • Up to 20 characters can be input for the general equipment name.
   • Up to eight characters can be input for the start, stop and error display characters.
   • Single quotations [']cannot be used for the name or display characters.
   • The function of general equipment can be selected the following item.
      Operation, operation display and abnormalities/warning status
      Operation and operation display
      Operation
      Abnormalities/warning status
   • If "operation output" is validated and "operation state input" is invalidated with the contact
     settings, the screen display and actual general equipment state may mismatch.
   • This function does not have a schedule function.

Changing the general equipment setting details
[Procedure]
1) Select the general equipment No.
   A sub-menu will open when the general equipment
   No. to be changed is clicked.
2) Select the [Change] button.
   When [Change] is selected from the sub-menu, the
   General equipment details setting screen will open.
3) Set the changed details.
   Set the details to be changed on the General equipment
   details setting screen.
4) Select the [OK] button after completing the settings.
   * When the [Cancel] button is clicked, this setting is terminated to return to the General equipment set-up screen.
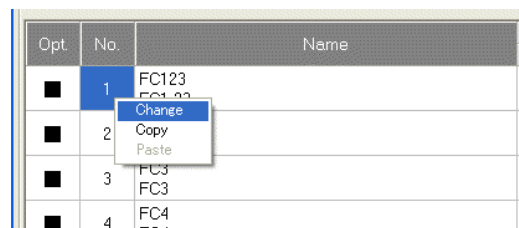
Copying the general equipment function
[Procedure]
1) Select the general equipment No.
   A sub-menu will open when the general equipment
   No. to be changed is clicked.
2) Select the [Copy] button.
   The general equipment setting details are copied
   when [Copy] is selected from the sub-menu.
3) Click on the general equipment No., and select [Paste].
   Click on the general equipment No. to be pasted to, and select [Paste]. The setting details will be
   reflected on the General equipment set-up screen.
   * The general equipment name will be copied in the original state, so change it on the General equipment details setting
     screen.
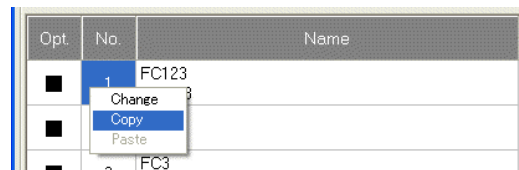
8.11 Monitoring Screen Set-up

Set the information such as the floor name, plan view, operation block, or other items to be monitored/displayed on the management screen of the integrated centralized control softwareTG-2000A.

8.11.1 Configuration Procedure and Restrictions

Check these points before setting the system configuration.

[Procedure]

1) **Click the [Monitoring screen set-up] button.**
   Click the [Monitoring screen set-up] button in the User Settings Group in the Initial window.

2) **Click the [OK] button after checking the display contents.**
   Check the information displayed and click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

The monitor display set-ups are done in the following order.
    Step 1 : Set-up of model name.
    Step 2 : Set-up of the number of floors, and floor name (for sub screen)
    Step 3 : Creation of a sub screen plane view (for sub screen)
    Step 4 : Set-up of the number of floors, and floor name.
    Step 5 : Creation of a plane view.
    Step 6 : Set-up relating a sub screen plane view and a plane view.
    Step 7 : Set-up of floor name and AG-150A/G-50A.
    Step 8 : Set-up of icon arrange and name.
    Step 9 : Set-up of block

Monitoring screen set-up preparation screen

If the "Sub screen function setting" on User setting 1 is "Deactivate," the following steps will appear:
Step1: Set-up of model name
Step2: Set-up of the number of floors, and floor name
Step3: Creation of a plane view
Step4: Set-up of floor name and AG-150A/G-50A
Step5: Set-up of icon arrange and name
Step6: Set-up of block

Note:
 • Some screens may not appear depending on the validity of the functions.

8.11.2 Set-up of model name (Step 1)

Set the model name of the air conditioner unit (outdoor unit, indoor unit, sub unit, LOSSNAY etc.) connected to this system.

Note:
 • The Charge function use this set Model name data. When the model name is changed, the data is monitored and control is carried out using that data.
 • The Model name can be checked during maintenance.

Setup the unit configuration model name
[Procedure]

1) **Click the "▲/▼" button to select AG-150A/G-50A No.**
   Select the AG-150A/G-50A No. to be assigned using the "▲/▼" buttons.

2) **Select the unit to be set.**
   Click the units for which the same Model Name is to be set. The selected cells are displayed in cyan and become the objective of Model Name setup. Each time clicked, the unit is alternately selected and removed. Multiple units can also be selected.

3) **Select the Kind, Type, and Model Name.**
   Select the Model Name of the unit you want to set from Kind, Type, Class, and Model Name. (Kind: IC, LC, FU, OC, BC, OS) The Model Name appears at Model Name candidate.
       * Refer to Chapter 8.7.3 for details of each model.

4) **Click the [Set] button.**
   When the [Set] button is clicked, the Model Name is reflected as a selected unit Model Name candidate.

Kind selection button
AG-150A/G-50A Selection button

Set-up of model name screen
Set button   **Model name candidate**

> Note:
> - The Model Name can be manually entered at Model Name candidate.
>   Single quotations ['] cannot be used.
> - The KIC and AIC type is not a database. Enter it manually.
> - A remote controller or system controller Model Name cannot be set.
> - When the charge function was used and the Model Name was changed, check the charge setting set contents. The capacity value of each unit is changed.

Removing a Model Name

[Procedure]

1) Select the unit to be removed.
   Click the unit whose Model Name you wish to remove. The cell is displayed in cyan, and becomes the Model Name setting objective. Multiple units can be selected.
2) Click the [Delete] button.
   Click the [Delete] button. The Model Name of the selected unit is deleted.

Frequency setting

[Procedure]

1) Select the frequency.
   Select the working frequency with the power frequency selection.
   50Hz: Power frequency 50Hz (default)
   60Hz: Power frequency 60Hz
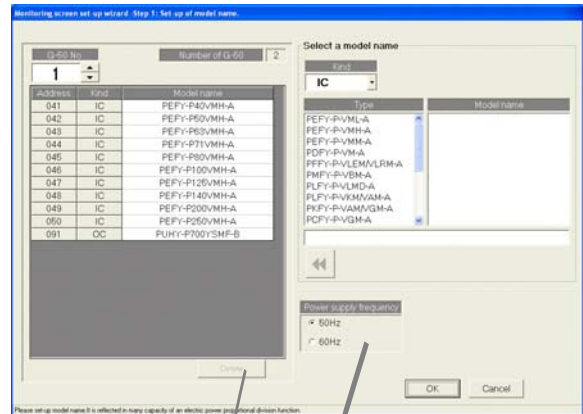
Delete button —
Frequency check box

Ending unit Model Name setup

[Procedure]

1) Select the [OK] button.
   After fully completing the type name setting of the AG-150A/G-50A unit, click the [OK] button on the setting screen.
   *When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

8.11.3 Set-up of the number of floors, and floor name (for sub screen) (Step 2)

Follow these steps to set the number of floors being managed and floor names.

Set the number of floors and floor names.

[Procedure]

1) Click the "▲/▼" button to select the number of floors
   Clicking "▲/▼" button selects the number of floors.
2) Click in the Floor name cell. Enter a name for each floor.
   Click the floor name cell to be set. The cell is now ready to receive text.
   Now enter the name of the floor. Do this for each floor.
3) Click [OK] button.
   When finished with these settings, click the [OK] button.

   * When the [Cancel] button is clicked, this setting is terminated to return to the initial windows.

Floor ⌐   ⌐ Floor   name

Set-up of the number of floors, and floor name

> Note:
> - The minimum number of floors is 1, the maximum is 99
> - Floor names can be a maximum of 16 characters.
>   (Duplicate settings are possible. Single quotations ['] cannot be used.)

8.11.4 Creation of a sub screen plane view (Step 3)

Follow these steps to create a floor plane for each floor. This floor plane is used in air conditioning operation and supervision for each floor. If not displaying a floor plane, it is not necessary to create one. (The background is white.)

> Note
> • The floor layout that was created for the TG-2000A cannot used with the AG-150A. Likewise, the floor layout that was created for AG-150A cannot be used with the TG-2000A.

Create a floor plane for each floor

[Procedure]

1) Click the Base [Change] button.

In the Floor Plan Settings window, click the [Change] button to edit the base plane. The paint brush appears. A base plane serves as a basis for the whole floor screen. To create the floor screen for each whole floor, copy the base drawing and modify it to suit each floor.

> Maintenance Tip
> • When Paint Brush Mode is activated, the file name and graphic size is set and should not be changed. If changed, the floor plane may not display correctly.
> (*Base plane for whole floor: For 4 sections
>   Name: BaseFloor1000.bmp Size: W174 H100
>   Base plane for whole floor: For 6 sections
>   Name: BaseFloor2000.bmp Size: W261 H100)

Creation of a plane view screen

2) Create a base plane.

Create a base plane with the paint brush.
* For details, see the Windows users guide.

3) Exit Paint Brush Mode.

Click the file menu and select the Exit Paint Brush option. Select "Yes" on "the save confirmation screen".

4) Select a floor using the "▲/▼" button

Use the "▲/▼" button to select the floor to be modified.

5) Click the Base [Copy] button.

To apply the created base drawing to the selected floor, click the Base [Copy] button. It is not necessary to click the Base Copy button when creating a new floor plane.

6) Click the [Change] button

To create or edit a floor plane for the selected floor, click the [Change] button. The paint brush starts up, and the floor plane can be edited.

7) Create a floor plane.

Use the paint brush to edit the floor plane of the selected floor.

Paint Brush window (initial state)

8) Exit the paint brush.

Click the paint brush File menu and select the Exit Paint Brush option.

9) Click [OK] button.

After a floor plane has been created, click the [OK] button

*When the [Cancel] button is clicked, this setting is terminated to return to the initial windows.
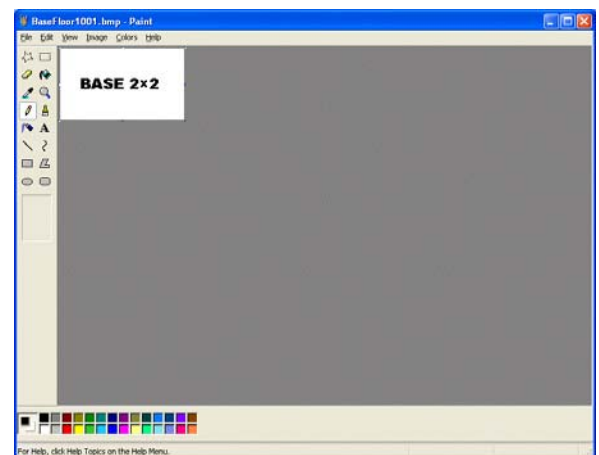
8.11.5 Set-up of the number of floors, and floor name (Step 4)

Follow these steps to set the number of floors being managed (floor count) and floor names.

Set the number of floors and floor names.

[Procedure]

1) Click the "▲/▼" button to select the number of floors
   Clicking "▲/▼" button selects the number of floors.
2) Click in the Floor name cell. Enter a name for each floor.
   Click the floor name cell to be set. The cell is now ready to receive text.
   Now enter the name of the floor. Do this for each floor.
3) Click [OK] button.
   When finished with these settings, click the [OK] button.

   * When the [Cancel] button is clicked, this setting is terminated to return to the initial windows.
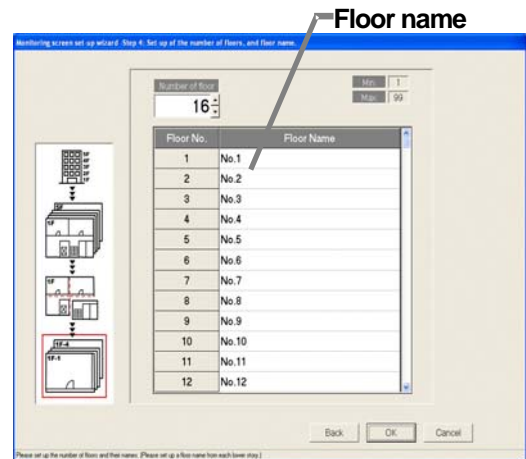
Floor name

Set-up of the number of floors, and floor

> Note:
> • The minimum number of floors is 1, the maximum is 99
> • Floor names can be a maximum of 16 characters. (Duplicate settings are possible. Single quotations ['] cannot be used.)

8.11.6 Creation of a plane view (Step 5)

Follow these steps to create a floor plane for each floor. This floor plane is used in air conditioning operation and supervision for each floor. If not displaying a floor plane, it is not necessary to create one. (The background is white.)

Create a floor plane for each floor

[Procedure]

1) Click the Base [Change] button.
   In the Floor Plan Settings window, click the [Change] button to edit the base plane. The paint brush appears. screen. To create the floor screen for each floor, copy the base drawing and modify it to suit each floor.

   > Maintenance Tip
   > • When Paint Brush Mode is activated, the file name and graphic size is set and should not be changed. If changed, the floor plane may not display correctly.
   >   (*Base plane:
   >   Name: Floor000.bmp   Size: W1000 H575)

Floor plane — **Base plane**

Floor selection

Creation of a plane view screen

2) Create a base plane.
   Create a base plane with the paint brush.
   * For details, see the Windows users guide.
3) Exit Paint Brush Mode.
   Click the file menu and select the Exit Paint Brush option. Select "Yes" on "the save confirmation screen".
4) Select a floor using the "▲/▼" button
   Use the "▲/▼" button to select the floor to be modified.
5) Click the Base [Copy] button.
   To apply the created base drawing to the selected floor, click the Base [Copy] button. It is not necessary to click the Base Copy button when creating a new floor plane.
6) Click the [Change] button
   To create or edit a floor plane for the selected floor, click the [Change] button. The paint brush starts up, and the floor plane can be edited.

Paint Brush window (initial state)

86

7) Create a floor plane.
   Use the paint brush to edit the floor plane of the selected floor.
8) Exit the paint brush.
   Click the paint brush File menu and select the Exit Paint Brush option.
9) Click [OK] button.
   After a floor plane has been created, click the [OK] button
   *When the [Cancel] button is clicked, this setting is terminated to return to the initial windows.

8.11.7 Set-up relating a sub screen plane view and a plane view (Step 6)
Set the sections (whole floor) to be displayed on the sub-screen, and the floor related items.

Set the whole floor and floor relation items
[Procedure]
1) Select a whole floor.
   Use the "▲/▼" button to select the whole floor to be displayed on the sub-screen.
2) Select the relation positions.
   Select the position to be related from the whole floor. The selected state will appear.
3) Select the related floor.
   Select the related floor from "Selection of a floor".
4) Click the [Set] button.
   The selected floor will be related to the whole floor, and the floor name will appear.
5) When finished with all settings, click the [OK] button.
   After relating the floors for the whole floor, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial windows.

Whole floor selection
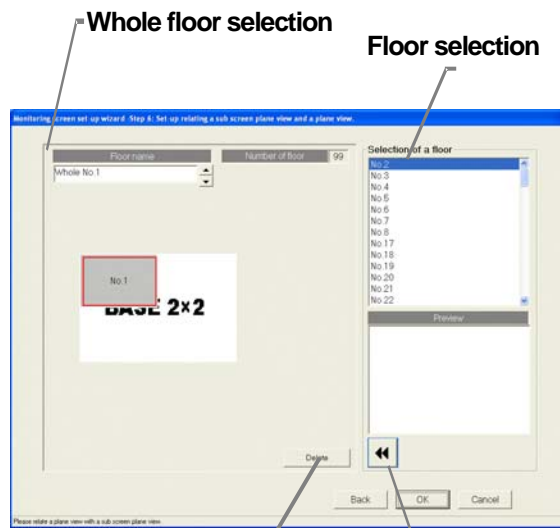
Floor selection

Delete button   **Set button**

Whole floor and floor relation setting

Note:
  • If the relations of all floors have not been set when the [OK] button is selected, a warning message will appear. Check that the required floors have been set.

Deleting a floor and floor relation settings
[Procedure]
1) Select a whole floor.
   Use the "▲/▼" button to select the whole floor to be displayed on the sub-screen.
2) Select the selection to be deleted.
   Select the floor to be deleted from the whole floor screen.
3) Click the [Delete] button.
   When the [Delete] button is clicked, that floor will move to the floor selection.

8.11.8 Set-up of floor name and AG-150A/G-50A (Step 7)
Follow these steps to set the AG-150A/G-50A for each floor.
Set floor and AG-150A/G-50A assignments
[Procedure]
1) Select the AG-150A/G-50A.
   In the Floor and G/W Options window, click the check box of the AG-150A/G-50A to be assigned to each floor.
       □ : Unassigned
       ■ : Assigned
   Assign a AG-150A/G-50A to every floor. (Up to 5 of AG-150A/G-50A can be set to each floor.)
2) Click the [OK] button.
   When finished with these settings, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Check box
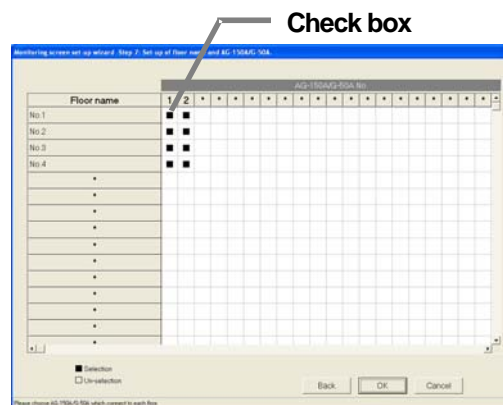
Set-up of floor name and AG-150A/G-50A screen

8.11.9 Set-up of icon arrange and name (Step 8)

Follow these steps to arrange group icons on each floor plane, and enter the group name (LCD name, short name, full name).

Set the group icons on each floor and set their names.

[Procedure]

1) Select the floor using the "▲/▼" button.
 In the Group Icon Layout window, use the "▲/▼" button to select a floor.

2) Select a group.
 With the floor showing, click the IC group or LC group to be assigned.

3) Select the location.
 Move the mouse pointer to the location where the group is to be assigned, then click that location. When you click this location, the group name entry screen will appear.
 * The group icons can be neatly arranged by validating the grid.

4) Enter the group name.
 Enter the LCD, short and full name for the group.
 * There is no LCD name for the general equipments.

5) Select the display icon.
 Set the display icon for each unit.
 Select the icon with either cursor button
 The user icon registration setting procedure.
 Users can create an original icon and import the icon with the image file selection.
 Click the user icon registration button.
 User icon registration screen will appear.
 Select the icon No. (1～10)
 Click the icon image file selection button and select a prepared image.
  ※The image size is 50x40 pixels.
 After the registration is completed, click the setting button to save the change.

6) Repeat steps 1) to 5).
 Layout the groups for each floor and enter their names.

7) Click the [OK] button after finishing with group layout.
 When finished with group layout and naming, click the [OK] button.
 * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Floor Selection Button

Display ON/OFF Button

Group List
Upper field: Air conditioner group
Lower field: General equipment
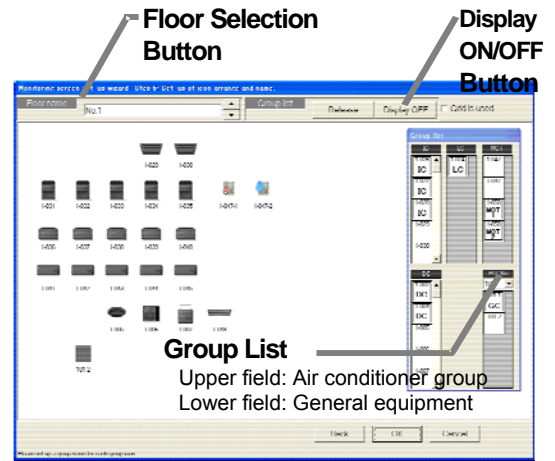
Group Icon Layout screen
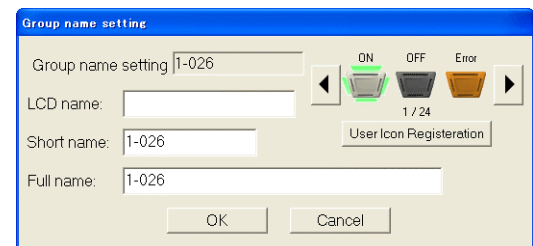
Group Name Setting screen
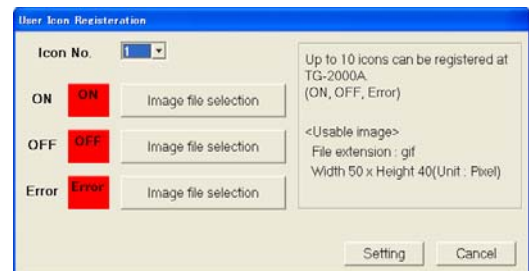
User Icon Registration screen

Note:
- The following limitations apply to group names.
  * LCD name is a name displayed by G-50A main part. The minus sign is used for "-" in the LCD name.
  LCD name: Up to 10 characters / Short name: Up to 8 characters / Full name: Up to 20 characters
  The short names are displayed on the group icons.
  Depending on the characters used, the entire 8 characters may not be displayed.
  Single quotations ['] cannot be used.
  In the long name, these characters [' < > & "] cannot be used.)
- When the [OK] button is clicked without all group icons arranged for the floor, caution is displayed. If so, execute the group placing and naming again.
- It is possible to use the group name as it is, which is collected from the G-50A. Note that the setting can only be executed once.
- * For the unassigned group, the operation block cannot be set for the following item. Note that the charge calculation is not executed because the setting for the charge (calculation) block cannot be executed. The charge block cannot be set unless the operation block is set. (It is possible to execute the normal operation for entire buildings even if the group is not assigned.)

Deleting, updating and renaming groups and their layout

Follow these steps to delete a group icon,
change a group name, or move a group icon.
[Procedure]

1) Click the icon.
   Click on the previously set group icon.
   The Delete/Change Name/Move window appears.

2) Click the "Delete", "Change Name", or "Move" button.
   To delete the group icon, click the Delete button,
   and the icon is deleted from the floor and returned to the group selection cell.

   Icon layout deletion : When the [Delete] button is clicked, the group icon is deleted from the floor display and returned to the group list.

   Name and icon change: Click the [Name and icon change] button. Name and icon change screen will appear. Change the name and the icon.

   Icon movement : Click the [Move] button. Since the icon concerned is set for the selected state, move the mouse pointer to the desired position, and click it. This moves the icon to the desired position.
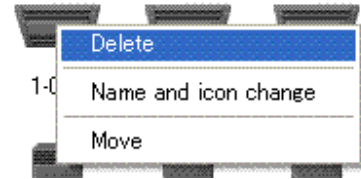
Note:
   • Clicking the [Release] button located in the upper part of the screen makes is possible to release the group icon selected.
   • When the [Display OFF] button located in the upper part of the screen is clicked, the group list window is not displayed. When the [Display ON] button is clicked, it is displayed.

8.11.10 Set-up of block (Step 9)

It is possible to set the block for each group as an operation block. This operation block can be also used for the charge calculation.

Set the block groups.

[Procedure]

1) **Select a floor using the "▲/▼" button**
   From the Block Settings window, use the "▲/▼" button to select the floor.

2) **Click the group icon.**
   Select the Group icon to be added to a block by clicking on it. More than one group may be selected at one time. Click on a selected group to deselect it.
   (The selected icon is displayed with red frame.)
   * The state changes from selected/not selected each time the group icon is clicked.

3) **Click [Block Set] button.**
   With the Group icon selected, click on the [Block Set] button. A Block Settings and Naming screen appears.

4) **Select either New or Exist.**
   In the Block Settings and Naming screen, use the option buttons to select either a new block name setting or an existing block.

5) **Enter a block name or select a block name.**
   To enter a new block name, just enter the name. To work with an existing block, select the block name.

6) **Click [OK] button.**
   Click the [OK] button after setting the block name. The label "Block**" appears in the group icon.
   (**: Block No.)
   * Max. 2000 blocks

7) **Repeat steps 1) to 6).**
   Set the blocks for the groups on each floor.

8) **Click [OK] button.**
   When finished setting blocks, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Name Change button

Block Set button

Release button
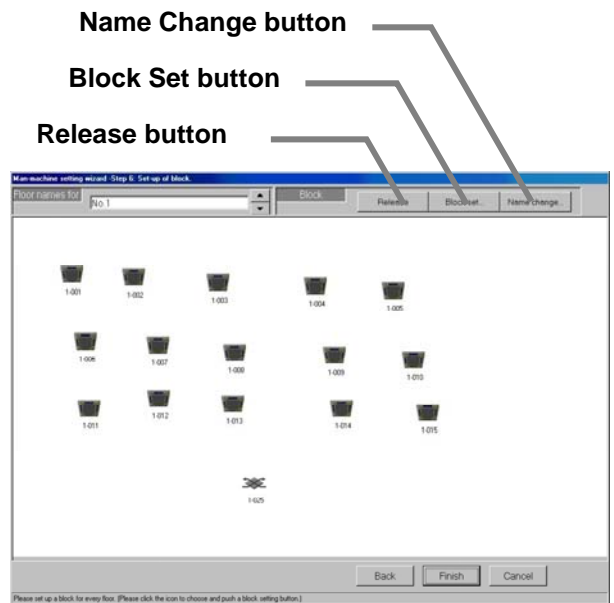
Set-up of block screen

Group icon select/non-select state display
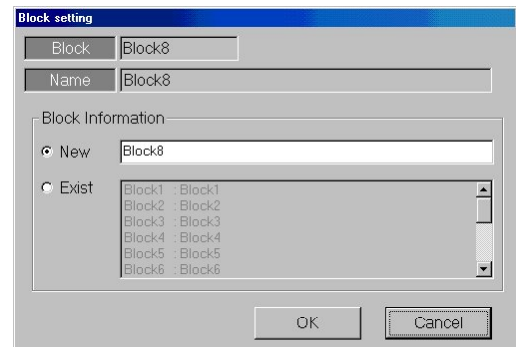
Block Settings and Naming screen

Note:
- Block names may contain a maximum of 20 characters.
  (These characters [' < > & "] cannot be used.)
- If all group icons are not assigned to a block, a warning message appears. Correct this error to proceed.
- When using the charge function, groups not assigned to blocks will not show up in the charge information. Be sure to assign all groups to a block.
- Basically, the operation block is the same as the blocks set in the AG-150A/G-50A browser.
  The operation block set with the integrated software TG-2000A can extend over AG-150A/G-50A units, but in this case, individual block settings will be used in the AG-150A/G-50A.

Deleting block settings
Follow these steps to delete block settings for a group.
[Procedure]
1) Click the group icon.
Select the group icon whose block settings you wish to delete by clicking on its icon.
2) Click [Release] button.
Select the [Release] button and the block settings for the selected group are erased. The "Block**"
label in the group icon disappears.

Note:
• If a named block has no groups assigned to it, a message appears asking if it is okay to delete the
block itself. To delete the block itself, click the [OK] button; to keep the block, click the [Cancel] button.

Changing the block name
Follow these steps to change the name of the selected
block.
[Procedure]
1) Click [Name change] button.
Click the [Name change] button in the Operation block
setting screen.
2) Select the block name.
Select the name of the block to change. The selected
block appears in the selected block cell.
3) Enter a new name.
Enter the new block name. Subsequently, enter the
other new block names (2) to 3)).
4) Click [OK] button after entering the block name.
After entering the block name, click the [OK] button. The block name is monitored.
OK   : Accept the new block name.
Cancel   : Delete any changes and restore the earlier block name.
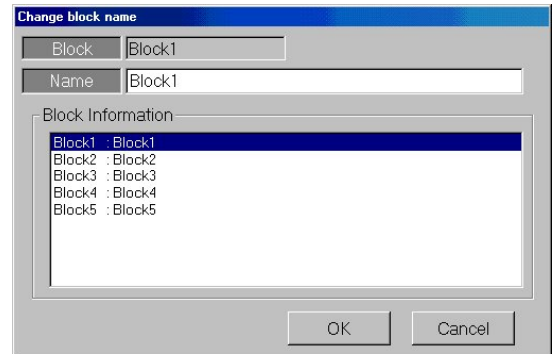
Block name change screen

8.12 Watt Hour Meter Set-Up (For RS-485)

Set the connection to the watt hour meter.
WHM setup sets the serial ports which connect to watt hour meters and the number of watt hour meters, address, WHM name, and maximum integrated value. It can be set for With WHM connection only.
※Refer to section 8.8.4 for the measurement meter for PI controller.

> Maintenance Tip (Caution)
> When changing the contents of settings related to the energy monitoring functions, be sure to compile (date specification) the charge information up to the previous day and print it out or have the result in hand before making changes to the settings. If charge information is not processed, the charge information will not be apportioned correctly.
> The monthly bill consists of a) + b) + standard charge
>   a) Charge information from the start of the current charge period to the day prior to any changes
>   b) Charge information from the day after any changes to the end of the current charge period
> There may be a discrepancy in the charge information just before or after a change to these settings.
>   * For details on setting charge periods, refer to Management manual section "9.3 Air-Conditioning Charge Output"

8.12.1 Setting Procedure and Restrictions
Before setting or changing WHM, check the precautions.

Check before WHM setup.
[Procedure]
1) Click [Watt hour meter set-up] button.
   From the Initial window, click on the [Watt hour meter set-up] button in the System Settings group.

2) Click [OK] button after checking the display contents.
   If there is no problem when the contents of the alarm displayed are checked, click the [OK button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.
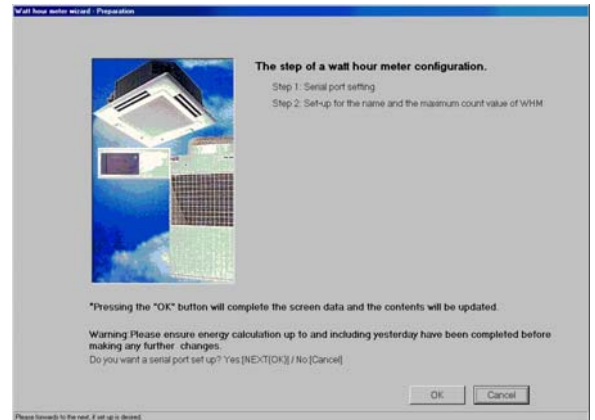
Watt hour meter set-up preparation screen

The Watt hour meter set-up are done in the following order.
    Step 1   Watt hour meter setting
    Step 2   Set-up for the name and the maximum integrated value of WHM

8.12.2 Watt Hour Meter Setting (Step 1)

Set the connection to the watt hour meter.
1) Select the port to assign to the watt hour meter.
   Click the watt hour meter option button, and set the serial port to be used.
2) Select the watt hour meter name.
   Select a name to be assigned to the watt hour meter.
3) Set the number and address of the watt hour meters.
   Set the number of watt hour meters to be used and their address.
4) Set the serial No.
   Input the serial No. for Model AEM31D/485 only.
     Example) When S/N 70-87948, set 87948.
5) Select [OK] button.
   When finished making changes, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.
   When address setting and communication confirmation failed, a warning message is displayed. Check the set contents.
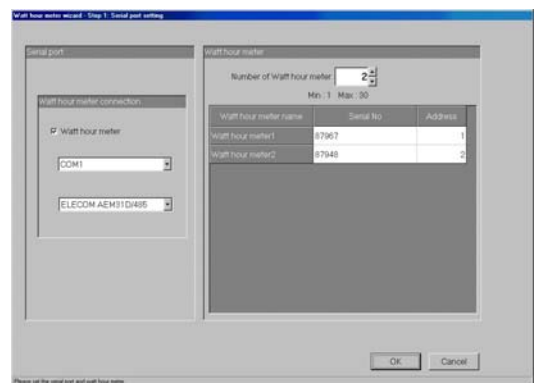
Watt hour meter setting screen

Warning screen

Note:
- The maximum number of watt hour meters is 30.
- If the address selected is already being used, a warning will appear. Choose a different address.

8.12.3 Set-up for the Name and the Maximum Integrated Value of WHM (Step 2)

Set the WHM name, location, and maximum integrated value

1) Enter the WHM name and location.
   Enter the connected WHM name and location.
2) Set the maximum integrated value.
   Use the "▲/▼" button or numeric input to set the WHM maximum integrated value.
3) Click [Finish] button.
   At the end of setting, click the [Finish] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.
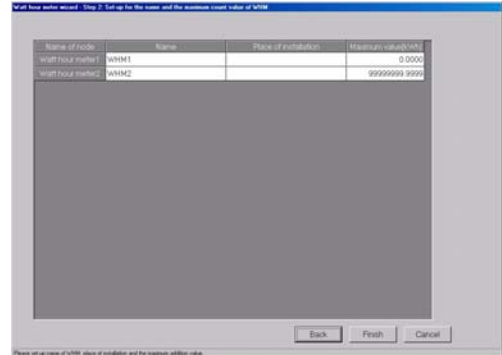
Name and maximum integrated value settings

Note:
- A name and location up to 16 characters long can be entered. (Single quotation ['] cannot be used.
- Always set the WHM maximum integrated value. If the correct maximum integrated value is not set, the energy monitoring functions will not operate normally.
- When the WHM maximum integrated value is 0, a warning is displayed. Set the WHM maximum integrated value.

[Reference]
Shows the communication parameters that must be set at the watt hour meter used.

Model	Baud rate	Parity	Stop bit	Notes
Power Rail 323	9600 bps	Fixed	Fixed	
AEM31D/485	Fixed	Fixed	Fixed	
CVM-BC-ITF-RS485-C2	9600 bps	None	1bit	
ED 39din-485	9600 bps	None	1bit	BCD used as communications protocol.

Items other than the above do not have to be set because they are fixed for each watt hour meter.

8.13 Measurement Meter Set-up (For PLC)
Set the meter connection.

The number of connected PLC for electric amount count units and IP address, and the number of meter units, type, address, name and pulse unit, etc., are set with the meter set-up. This information can be set only when a watt hour meter/meter is set.

Maintenance Tip (Caution)
Before changing the settings related to the charging function, settle the account to the previous day (designated date), and record the results by printing or writing them down. The charge apportionment is not calculated correctly if the account is not settled.
The settlement for the current month is: a) + b) + basic charges.
   a) Day after settlement to previous day R Designated date settlement
   b) Current day to next settlement day R Designated date settlement
There are cases when the changed day cannot be calculated correctly.
* Refer to the Management Manual "9.3 Output of Charge Air-conditioning" for details on settling the designated date.

8.13.1 Setting Procedure and Restrictions

Before setting or changing the watt hour meter, check the precautions.

Prepare the meter set-up.

[Procedure]

1) Click the [WHM Set-up] button.
   From the initial window, click the [WHM Set-up] button in the System Settings group.

2) Click the [OK] button after checking the display contents.
   Check the details displayed in the warning, and then click the [OK] button.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

The watt hour meter (WHM) is set in the following order.
   - Step 1   Number of PLC unit set-up
   - Step 2   PLC set-up and initial setting
   - Step 3   Meter set-up

Meter Set-up Preparation screen

8.13.2 The number of PLC(s) (Step1)

Set the number of connected PLC units.

[Procedure]

1) Select the number of connected PLC units.
   Select the number of connected PLC units by clicking "▲/▼" button.

   * Number of connected units: 1 to 5 units

2) Click the [OK] button.
   After making the settings, click the [OK] button.

   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Number of unit set-up buttons
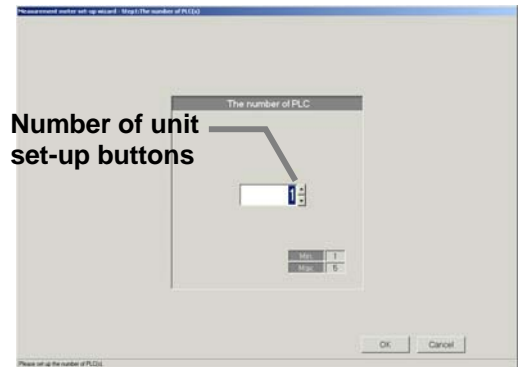
Number of PLC unit set-up screen

Note:
   - Up to 32 meters (including WHMs) can be set for one PLC.
   - The meters can be set only to the models with a pulse transmitter, and are not compatible with the level output type.
     (Refer to the power rate count software installation manual.)

8.13.3 PLC set-up and initial set-up (Step 2)

Set the PLC IP address.

[Procedure]

1) Select the PLC No. with the ▼ button.
   Select the No. of the PLC for which the IP address is to be set by clicking the ▼ button.

2) Set the IP address
   Register the PLC IP address in the integrated software.

   * The IP address is set in the PLC using the PLC.

   * Recommended IP address: 192.168.1.151 to 155

   Set the IP address for all connected PLC for general equipments by repeating steps 1) and 2).

Monitor button
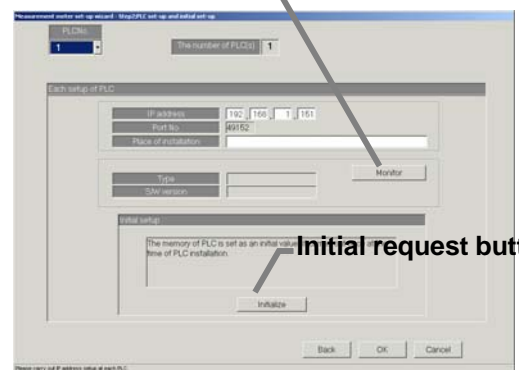
Initial request button

PLC connection set-up screen

94

Monitor the PLC version

[Procedure]

1) Select the PLC No.

Select the PLC No. by clicking the "▼" button.

2) Select the [Monitor] button.

Click the [Monitor] button in the PLC Connection Set-up screen. The PLC software type and version are monitored and the results appear.

   *   A warning message appears if the address setting or communication confirmation fails. Check the setting details.

   *   Proper communication can be confirmed with the PLC version monitor.

Initialize the PLC

[Procedure]

1) Select the PLC No.

Select the PLC No. by clicking the "▼" button.

2) Select the [Initial Setting] button.

When the [Initial Request] button on the PLC Connection Set-up screen is clicked, the PLC memory is initialized so that it can be used.

> Note:
> - All settings are initialized when the PLC is initialized, and all data is erased. **This "Initial Setting" must be carried out only once when initially setting the PLC.**
>   If executed during operation, the electric amount data will be erased and the electricity charge apportionment will not be calculated correctly.

Close the PLC Connection Set-up window

[Procedure]

1) After making all of the settings, select the [OK] button.

   *   When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

8.13.4 Measurement meter set-up (Step 3)

Set the meter type, name, installation place and pulse unit.

1) Select the PLC No. with the ▼ button.

Select the PLC No. to be set by clicking the "▼" button.

2) Select the meter to be used.

■: Selected

□: Not selected

3) Set the name, installation place and pulse unit.

Set the applicable type, name, installation place and pulse unit of the selected meter.

  * Applicable type: Air conditioner, electricity 1, electricity 2, gas,

    water, calorific value

4) After making all of the settings, select the [OK] button.

   *   When the [Cancel] button is clicked, this setting is terminated to return to the initial window.
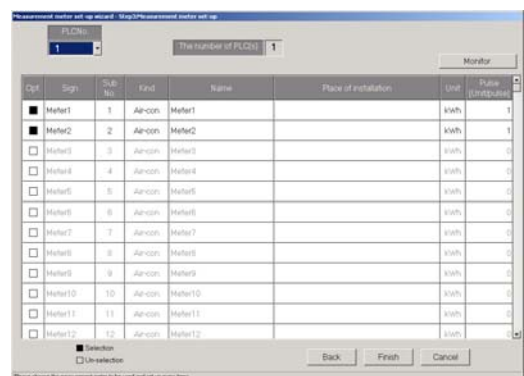
Measurement meter set-up screen

> Note:
> - Up to 20 characters can be input for the name and installation place. (Single quotations (') cannot be used.)
> - Always set the meter pulse unit. If not set, the cumulative usage amount will not be correctly measured and the charging function will not work properly.
> - Only the pulse setting can be monitored with the monitor button.

8.14 Energy Monitoring Set-up

Follow these steps to set the information for the charge support system connected to this integrated centralized control software (TG-2000A). If these settings are not correct, the charge function will not operate correctly.

Maintenance Tip (Caution)
- When making changes to the settings, be sure to compile charge information up to the previous day and print it out or have the results in hand before making changes to the settings. If charge information is not processed, the charge information will not be apportioned correctly.

  The monthly bill consists of a) + b) + standard charge
  a) Charge information from the start of the current charge period to the day prior to any changes
  b) Charge information from the day after any changes to the end of the current charge period

  There may be a discrepancy in the charge information just before or after a change to these settings.

  * For details on setting charge periods, refer to Management manual section "9.3 Air- Conditioning Charge Output"

8.14.1 Setting Procedure and Restrictions

Follow these steps to set the charge information used in calculating the air-conditioning fees in this integrated centralized control software (TG-2000A).

Set Charge System options.

[Procedure]

1) Click [Energy monitoring set-up] button.

   From the Initial window, click the [Energy monitoring set-up] button in the System Settings group. The Energy monitoring set-up preparation screen appears.

2) Click [OK] button after checking the display contents.

   If there is no problem when the contents of the alarm displayed are checked, click the [OK] button to proceed to the settings.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Energy monitoring set-up preparation screen

The Energy monitoring set-up are done in the following order.

Step 1   Division mode
Step 2   Relation between outdoor units and watt hour meters
Step 3   Electrical specification of outdoor units
Step 4   Relation between indoor units and watt hour meters
Step 5   Electrical specification of indoor units
Step 6   Charging blocks

Note:
- The [OK] and [Finish] buttons accept the changes to the settings.
- The [Cancel] button cancels any changes made and exits the Energy monitoring set-up.
- The [Back] button cancels any changes made and returns to the previous window.
- Steps which do not have to be set are not displayed depending on the selected charge method.
- Numeric and character input items can be copied and pasted by right clicking the mouse.
- For Without watt hour meter connection proportionally divided power charge (manual input of the electric amount) contained in this integrated centralized control software TG-2000A, the following steps are not displayed, but are skipped.

  Step 2   Relation between outdoor units and watt hour meters
  Step 3   Electrical specification of outdoor units
  Step 4   Relation between indoor units and watt hour meters

8.14.2 Division mode (Step 1)

Follow these steps to set the reference data and Division Mode for outdoor and indoor units in the charge system.

Select the Division Mode or proportional division refer-ence data.

[Procedure]

1) Select the Division Mode.

   Click the option button of the desired Division Mode.

2) Select [OK] button.

   When done making selections, click the [OK] button.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Watt hour meter fault prediction display
Whether to enable or disable the fault prediction display function can be selected only for the watt hour meter compatible with the outdoor unit or indoor unit. (Default value is "Display".)
The fault prediction will be displayed on the management screen.
* The direct-read watt hour meter is not compatible
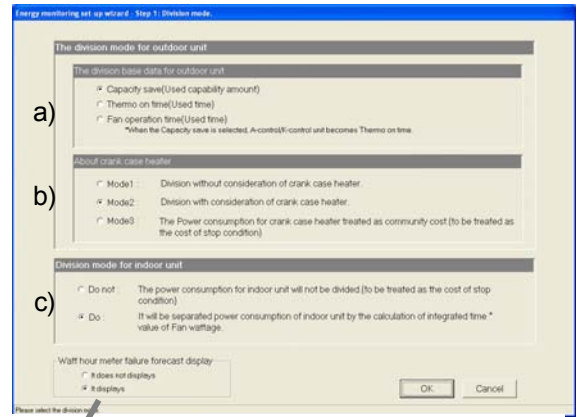
Division   Mode   Set-up screen

a) Proportional division reference data

The power consumption of the outdoor units is the sum of the Operating Power and Standby Power (for the crankcase heater).

The Operating Power for the outdoor unit is divided proportionally in accordance with the reference operation data of the indoor unit.

Reference data 1: Capacity save(electric amount used) ... (Default)
Reference data 2: Thermo on time (usage time of compressor)
Reference data 3: FAN operation time (usage time)

b) Division mode for outdoor unit

Choose the mode of the Standby Power for the outdoor unit from the following:

Mode 1 : Includes the Standby Power in the apportioned data.
Mode 2 : Apportions the Standby Power separately from the Operating Power, according to the capacity ratio of the indoor units. (Default)
Mode 3 : Includes the Operating Power in the apportioned data but does not include the Standby Power.

c) Division mode for indoor unit

Select the division mode for indoor unit electric amount used (primarily FAN).

Do not : When the power consumption of the indoor units is not apportioned, or the watthour meter is not connected to the indoor units.
Do   : Use the formula (cumulative indoor unit usage × power input) when dividing. (Default)

Note:
- The proportionally divided power charge function (Without WHM connection) can only be selected as the "Proportional division reference data".
- The capacity save is given by integrating the operation volume with the working capacity divided into 3.
- Please select the Division Mode appropriate for the system.
- For the proportionally divided power charge (manual input of the electric amount), the calculation is made in accordance with the operation volume (reference data) of the indoor unit.
- Although "Capacity save" is selected when there are A-control(*1) or K-control units, it will be automatically changed to "Thermo-ON time", and perform apportioning billing system. (WHM unit for outdoor units. In all buildings for manual input of watt hour.)
  (*1) On Ver. 5.16. and later and Ver. 5. 5* and later, the apportioned electric charge for A-control units is calculated based on the "Thermo-ON" time if "Capacity save" is selected.

8.14.3 Relation between outdoor units and watt hour meters (Step 2)

Follow these steps to set the connection between the outdoor unit and the watt hour meter. Perform these steps for all outdoor units connected to a watt hour meter.

Set the Outdoor Unit and watt hour Meter Relationship.

[Procedure]

1) Click on the "▲/▼" button to select the watt hour meter
   Clicking the "▲/▼" button, select the target meter. Select only meters that are connected to the outdoor unit.

2) Select the AG-150A/G-50A number using the "▲/▼" button
   Select the AG-150A/G-50A number for the outdoor unit connected to the watt hour meter.

Select AG-150A/G-50A
Select WHM
Selected outdoor unit field

Outdoor unit candidate field
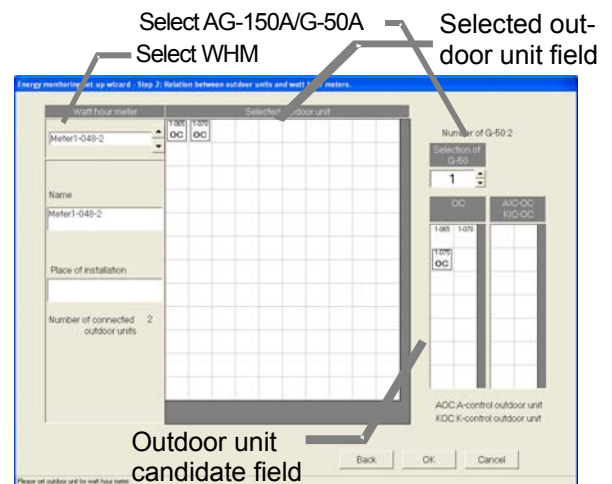
Outdoor Unit and Watt Hour Meter
Relationship Settings screen

3) Select the OC, AOC, KOC icon, and click on the selected outdoor unit.
   Select the icon of the outdoor unit connected to the watt hour meter by clicking on the icon. Then, click in the cell of the selected outdoor unit. The outdoor unit is now connected to the watt hour meter.

4) Repeat steps 1) to 3).
   Repeat this procedure on each of the outdoor units connected to a watt hour meter. Also, set the options for every watt hour meter that has an outdoor unit connected to it.

5) Select [OK] button.
   When done with these settings, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Delete Watt Hour Meter Relationships.

Follow these steps to delete the relationship between an outdoor unit and a watt hour meter.

[Procedure]

1) Click on the icon to be deleted.
   Click on the icon of the outdoor unit to be deleted.
   The relationship between that unit and the watt hour meter is deleted.

Note:
- If a unit has not been assigned to a watt hour meter, a warning is displayed. Correct the setting to proceed.
- This setting window is not displayed for Without WHM connection proportionally divided electric charge (manual input of the electric amount).
- Since the charge calculation method or the coefficient of performance (COP) may differ depending on the model shown below, accurate charge calculation result may not be obtained. To avoide this, connect the unit to separate watt hour meter.
    CITY MULTI, A-control unit, and K-control unit

8.14.4 Electrical specification of outdoor units (Step 3)

Follow these steps to set the crank case heater of an outdoor unit connected to a watt hour meter.
Do these steps for all connected outdoor units.

Set the crank case heater of outdoor unit.

[Procedure]

1) Select the AG-150A/G-50A number using the "▲/▼" button.

   Using the "▲/▼" button, select the AG-150A/G-50A number assigned to the outdoor unit whose crank case heater is to be set.

2) Set the crank case heater.

   Click on the crank case heater cell of each outdoor unit, and set the value (W). Since the crank case heater is different for each crankcase type, please see the data book or catalog for details.

   * For outdoor units with a unit Model Name set in the database, the value of crank case heater is displayed automatically.

3) Repeat steps 1) and 2).

   Repeat these steps for every unit.
   For A/K control units, AIC and KIC are displayed.

4) Select [OK] button.

   When finished setting the crank case heater, click the [OK] button.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Select AG-150A/G-50A
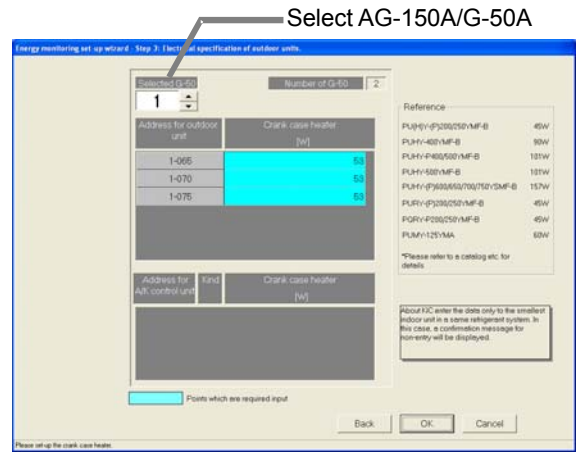
Outdoor Unit Settings screen

Model Numbers	Crank Case Heater Capacity
PUY-(P)200/250YMF-C PUHY-(P)200/250YMF-C PHRY-(P)200/250YMF-C	62W
PUHY-P400/500YMF-B	101W
PUHY-(P)600/650/700/750 YSMF-B	157W
PURY-(P)200/250YMF-B PQRY-P200/250YMF-B	45W
PUMY-P125YMA	60W (equivalent)

Note:
* Outdoor units connected to a watt hour meter are light blue. When a set outdoor unit Model Name applies to a database, its crank case heater capacity is displayed automatically. Check the displayed value and correct it, as required.
* The value of crank case heater depends on the model. Refer to the data book, catalog, and other information.
* A warning message appears if even one outdoor unit connected to a watt hour meter does not have its crank case heater set (0W). Make sure each value is set to proceed.
* Failing to set the crank case heater may effect the charge information.
* In the case of the Super Y series and Combination Multi models, use the total crank case heater for that model number. (The value input to "OS" is not used.)
* When Division Mode 1 is selected, this screen does not appear.
* This setting window is not displayed for Without WHM connection proportionally divided electric charge (manual input of the electric amount).
* When multiple K-control indoor units (KIC) are connected to the outdoor unit, set the crankcase heater on only the KIC whose address is the smallest in the refrigerant system, and set 0W on others. In this case, input error message will appear. Ignore the message and go on to the next step.
* For non-registered units, refer to the data book or catalog when inputting crank case heater.
  The value of crank case heater for A-control and K- control units is not set automatically.
* The value of crank case heater is used for the main part of standby electricity. The value of standby electricity is not the same as actual amount.
* When the model name is selected, the values for the crank case heater is automatically reflected.
  If, in section 8.11.2 "Set-up of model name", a model name that is not on the list was manually entered, values for the crank case heater need to be manually entered.

8.14.5 Relation between indoor units and watt hour meters (Step 4)

Follow these steps to set the connection between the indoor unit and the watt hour meter.

Set the Indoor Unit and Watt Hour Meter Relationship.

[Procedure]

1) Click on the "▲/▼" button to select the watt hour meter.
   Clicking the "▲/▼" button, select the target meter.
   Select only meters that are connected to an indoor unit.

2) Select the AG-150A/G-50A number using the "▲/▼" button.
   Select the AG-150A/G-50A number for the indoor unit connected to the watt hour meter.

3) Select the IC icon, and click on the selected indoor unit.
   Select the icon of the indoor unit connected to the watt hour meter by clicking on the icon. Then, click in the cell of the selected indoor unit. The indoor unit is now connected to the watt hour meter.

4) Repeat steps 1) to 3).
   Repeat this procedure on each of the indoor units connected to a watt hour meter. Also, set the options for every watt hour meter that has an indoor unit connected to it.

5) Select [OK] button.
   When done with these settings, click the [OK] button.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Select AG-150A/G-50A
Select WHM
Selected indoor unit field

Indoor Unit and Watt Hour Meter Relationship Settings screen

Indoor unit candidate field
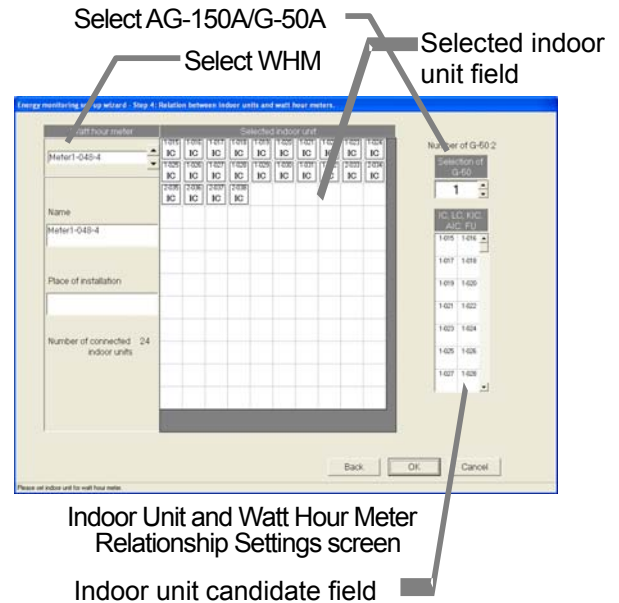
Note:

- When "Chage for A/K control unit" is set to "Deactive", IC, LC, FU, KIC and AIC cannot be connected to the same watt hour meter simultaneously. Connect KIC and AIC to different watt hour meters.
- Connect large-capacity indoor units (with two or more addresses) to a watt hour meter especially prepared for use with those types of units.
- A warning message appears if an indoor unit is not connected to a watt hour meter. Make sure each unit is connected to proceed.
- When the Indoor Unit Division Mode is set to "Do not", this window does not appear.
- This setting window is not displayed for Without WHM connection proportionally divided electric charge (manual input of the electric amount).

Deleting Watt Hour Meter Relationships

Follow these steps to delete the relationship between an indoor unit and a watt hour meter.

[Procedure]

1) Click on the icon to be deleted.
   Click on the icon of the indoor unit to be deleted.
   The relationship between that unit and the watt hour meter is deleted.

Request (note)

The following units must be connected to the separate watt hour meters. If not, accurate charging results cannot be obtained due to the performance (COP) difference of the air conditioning equipment.

- CITY MULTI, A-control unit, and K-control unit

8.14.6 Electrical specification of indoor units (Step 5)

Set the parameter for all indoor units connected to the AG-150A/G-50A.

Set indoor unit operating capacity and power input and auxiliary heater.

[Procedure]

1) Select the AG-150A/G-50A number using the "▲/▼" button.

   Using the "▲/▼" button, select the AG-150A/G-50A number for the indoor unit whose capacity is to be set.

2) Set the Capacity, power input and auxiliary heater.

   Click the indoor unit parameter cells.

   Enter the indoor unit parameter of "Cooling Capacity", "Power input (Cooling)" and "Auxiliary heater".

   * Since the value of each capacity is displayed automatically for the indoor units for which the model name set in section "8.7.2 Model Name" exists in the database, check such value.

3) Click [OK] button after setting all indoor units.

   After completing the capacity setting for all indoor units, click the [OK] button.

   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Select AG-150A/G-50A

Indoor unit parameter set column
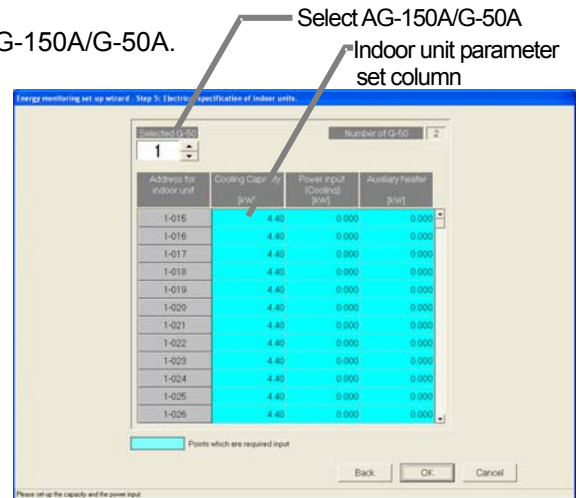
Indoor Unit Settings screen

Note:
- Each capacity column for all the indoor units is indicated in light blue as an item required for setting. Enter the operating capacity and FAN capacity and auxiliary heater capacity.
  (For indoor units without auxiliary heaters, set the auxiliary heater to "0W".)
  When the model name of the indoor unit for which the model name is set in section "8.7.2 Model Name" corresponds to the internal data, the parameter is displayed automatically. Check the displayed value and correct it, as required.
- The units not included in the charge apportioning billing should be set to "0W."
- Each parameter differs depending on the machine model. Please see the data book or catalog for details.
- A warning message appears if even one indoor unit does not have its parameter set. Make sure each parameter is set to proceed.
- Note that the proportional division may fail to be calculated correctly unless the parameter of all indoor units (intended for proportionally divided power charge) is set properly.
- When the Indoor Unit Division Mode is set to "Do not", set the indoor unit parameter of "Cooling Capacity" and "Power input (Cooling)".
- For Without WHM connection proportionally divided electric charge (manual input of the electric amount), set the indoor unit parameter of "Cooling Capacity", "Power input (Cooling)" and "Auxiliary heater".

8.14.7 Charge Blocks (Step 6)

Follow these steps to set charging blocks using the control blocks.
Air-conditioning charges are calculated for each charging block.

Set the charge blocks.

[Procedure]

1) Select the charging block setting method.

   Select either "The same as that of the block for operation" option or "Create separately" option. When the setting method is the same as that of the operation block, check that " The same as that of the block for operation " is selected, and proceed to step 6).

   "The same as that of the block for operation":
   The charging block is the same as the operation block.

   "Create separately":
   Set the charging blocks separately.

Charge block name

Charge block set-up

Operation block

Charge block   Object block
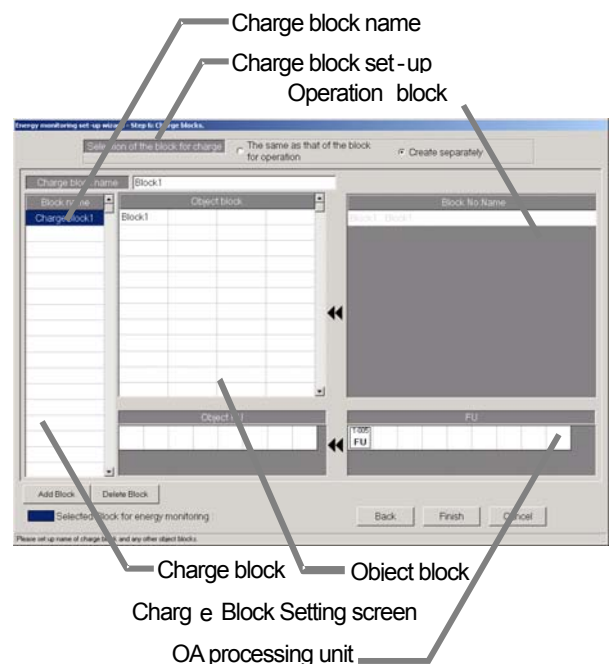
Charge Block Setting screen

OA processing unit

When the "Create separately" is selected, the same contents as those of the operation block are displayed as charging block contents.

2) Select the charging block.

Select the charging block to be selected from the charging block column. The cell of the charging block selected changes to blue.

3) Input the charge block name.

Input the charging block name in each column of the charge block.

4) Select the operation block.

Click the operation block to be set for the charging block from the column of the operation block (operation block No., name) to set it to selected status.

* Note that it is not displayed unless there is an operation block that is not set. Set the operation block to be selected to not-set status by executing the "Delete charging block".

5) Move it to the object block column.

Click the selected block at the block column (intended for charge), by which the operation block is registered in the charging block.

6) Set the block setting on OA processing unit (FU).

When OA processing unit is included in the charging block, move it to the object FU column.

7) Click [OK] button after completing all the settings.

After completing the settings of all charging blocks, click the [OK] button.

* If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Note:
- Block names may be a maximum of 20 characters. (Single quotations ['] cannot be used.)
- It is possible to set up to 2,000 charge blocks. The charge block consists of the operation block.
- The settlement of the air-conditioning charge is made for each charging block. It applies only to the air conditioner to which the proportional division is executable.
- If there is a operation block with incomplete settings in the charge block, a warning will appear. Perform settings on all blocks to proceed.
- When "Charge for FU 'Deactivate'" is set on user setting2, OA processing unit will not appear.

Delete the charge block.

Delete the charging block, and reset the set operation block to not-set.

[Procedure]

1) Click the charging block.

Click the block whose setting you want to delete. The block is selected. (Blue display)

2) Click [Delete Block] button.

When the [Delete Block] button is clicked, the block settings are deleted and the block returns to the "Block No.: Name" column.

Release a block from charge blocks.

Reset the setting of a specified operation block from the charge block.

[Procedure]

1) Select the target charge block.

Click the charge blocks to which the target block you want to select and release belongs. The selected charge block is displayed in blue.

2) Select the target block.

Click the block you want to release in the "Block Target" column from which the target block is selected. That block is moved to the "Block No. : Name" column.

Delete Block button
Add Block button
Add & Delete setting screen

Add charge blocks.

Follow these steps to add a charge block.

[Procedure]

1) Select [Add Block] button.

To add a charging block, click the [Add Block] button. A charge block is added as the lowest nonexistent block No.

* For setting the charge block name, etc., refer to "Set the charge blocks".

8.15 Charge Set-up (For RS-485)

8.15.1 Currency unit set
Follow these steps to set the currency. Currencies that do not appear in the display can be entered manually.

Selecting a Currency from the Display
[Procedure]
1) Click the Currency option button.
   Click the option button of the currency to be used.

Manually Setting the Currency
[Procedure]
1) Click "Etc." option button.
   To display a currency that does not exist in the currency display, click the "Etc." option button.
2) Enter the currency unit.
   Enter the currency unit and the number of decimal places to use.
   * The number of decimal: 0~4
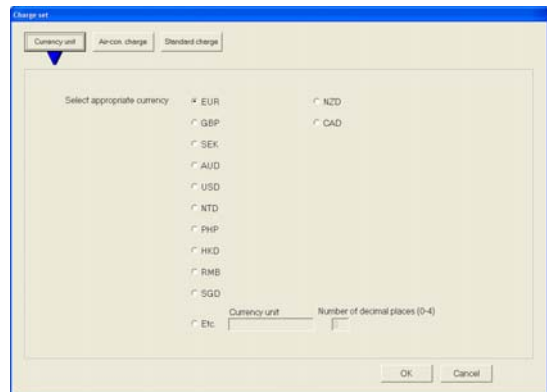
Currency Unit screen

Exit the Currency Settings.
[Procedure]
1) Click [OK] button.
   To exit the Currency Settings, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

8.15.2 Charge set
Follow these steps to set the rate schedule for electric power fees. Select within/outside, weekend, and seasonal rates for this rate system.

Set the electric power rate schedule.
[Procedure]
1) Select the rate schedule to be used.
   Click the option button of the rate schedule to be used.
2) Select the unit rate and applicable time period or day of the week.
   Set the unit rate, applicable time, month/day, or day of the week for the rate schedule. Inputting from the keyboard is also possible.
3) Click [OK] button.
   When finished setting the rate schedule, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.
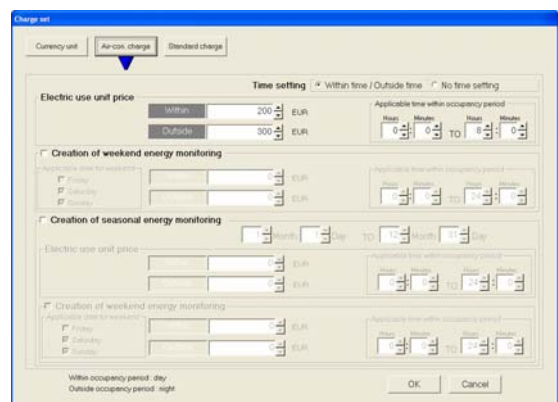
Rate Settings screen

Note:
- If a required item is left blank (including 0 value), a warning message appears. Correct this item to proceed.
- Charge setting can also be performed at the Management window.
- Within a time (daytime) spanning one day cannot be set. Within a time (daytime) can be set once a day.
- It is possible even for proportionally divided power charges (manual input of electric amount) (*) to make the settlement for the "Charge ratio" of the air-conditioning charge using the unit price cost calculated on this screen. Be sure to execute the charge setting.
  * Without watt hour meter connection proportionally divided power charge function

8.15.3　Standard charge set

Follow these steps to set the standard (fixed) monthly charge by block or by watt hour meter. The standard (fixed) monthly charge for watt hour meters can only be set on those units billed by the watt hour meter.

Set the standard charge.

[Procedure]

1) Set the standard (fixed) monthly charge.

Enter the standard (fixed) monthly charge by block or watt hour meter. The standard (fixed) charge for watt hour meters can only be set on those units billed by the watt hour meter.

2) Click [Finish] button.

When finished with these settings, click the [Finish] button.

* If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.
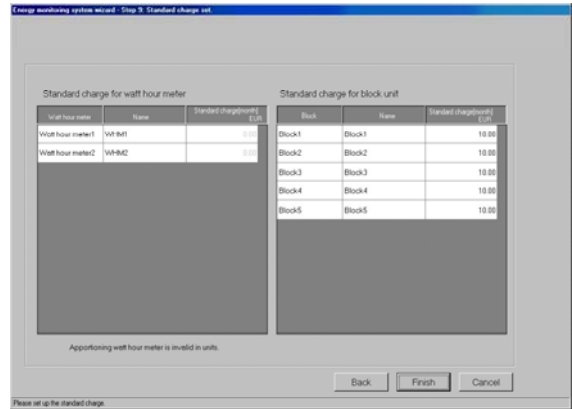
Standard charge setting screen

Note:
- This setting window is not displayed for Without watt hour meter connection proportionally divided power charge.
- Standard charge setting can also be performed at the Management window.

8.16 Charge Set-up (For PLC, PI controller and without WHM connection)

Set the power apportionment billing's basic charges, weekly charges and annual charges, etc., in this integrated software (TG-2000A) system.

The power apportionment billing function does not work unless this information is set. These charges can also be set from the Management window.

Maintenance Tip (Caution)

- When making changes to the settings, be sure to compile charge information up to the previous day and print it out or have the results in hand before making changes to the settings. If charge information is not processed, the charge information will not be apportioned correctly.

  The monthly bill consists of a) + b) + standard charge

  a) Charge information from the start of the current charge period to the day prior to any changes

  b) Charge information from the day after any changes to the end of the current charge period

  There may be a discrepancy in the charge information just before or after a change to these settings.

  * For details on setting charge periods, refer to Management manual section "9.3 Air-Conditioning Charge Output"

8.16.1 Setting Procedure and Restrictions

Check the charge setting procedures and items.

Set the charges

[Procedure]

1) Select the [Charge Setting] button.

   From the initial window, click the [Charge Setting] button in the System Settings group. The Charge Setting window opens.

   - When the [Set Complete] button is clicked, the initial window opens.

Setting items:

- Currency unit
- Basic charge
- Season period
- Weekly charge (electricity unit price)
- Annual charge
- Meter unit price

Charge Setting screen

Complete the charge settings

1) Select the [Set Complete] button.

   Set the various items, and click the [Set Complete] button on the Charge Setting screen. The initial setting window opens.

8.16.2 Currency unit set (Step 1)

Follow these steps to set the currency.

Setting the currency

[Procedure]

1) Click the currency unit [Change] button.

   Select the currency unit [Change] button on the Charge Setting window to open the Currency Unit screen.

2) Set the currency unit.

   Select the currency unit from the list. If the required currency unit is not displayed in the list, select "Etc.", and enter the currency unit in the [Currency Unit] field. Enter the number of decimal places in the [Number of decimal places (0-4)] field.

3) Select the [OK] button to end the settings.

   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting window will open.

8.16.3 Basic charge setting (Step 2)

Set the basic charges (monthly) for the block unit and watt hour meter/meter unit.

Note that the watt hour meter used for apportionment billing is excluded.

Set the basic charges

[Procedure]

1) Select the basic charge [Change] button.
   Select the basic charge [Change] button on the Charge Setting window to open the Basic Charge window.
2) Set the basic charges.
   Input and set the basic charges for the meter or block unit.
   * The basic charges cannot be set for the watt hour meter used for the air conditioner unit.
3) Select the [OK] button to end the settings.
   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.

Basic charge
Set the basic charge (monthly unit) for the block and meter unit.

Basic Charge Setting screen

> **Note:**
> • This setting window does not open for the power apportioning billing (manual input of electric amount) with no WHM connected.
> • The basic charges can also be set from the Management window.
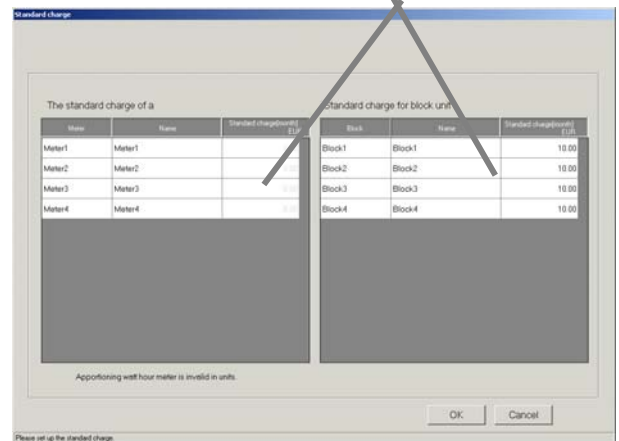
8.16.4 Season period setting (Step 3)

Set the applicable interval when using seasonal charges.

Set the basic charges

[Procedure]

1) Select the season period [Change] button.
   Select the season period [Change] button on the Charge Setting window to open the Season Period Setting window.
2) Set the validity of the season setting and the period.
   Select the validity of the seasonal charge setting, and if valid, set the period.
3) Select the [OK] button to end the settings.
   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.
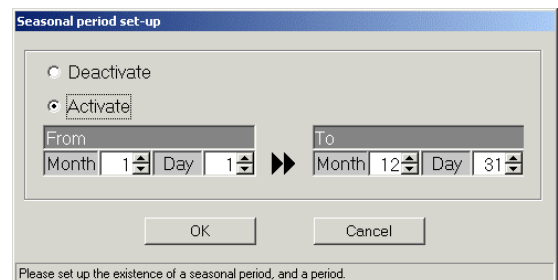
Season Period Setting screen

> **Note:**
> • The validity of the season setting and the period are set on the Seasonal Interval Setting screen. The unit price is set with the weekly charge settings.
> • The season interval can also be set from the Management window.

8.16.5 Weekly charge setting

Set the weekly unit price and weekly time zone. Up to five unit prices, and up to ten charge time zones per day can be set. Two unit price systems, one normal and for the season period, can be set.

Set the unit price and charge time zone.

[Procedure]

1) Select the weekly charge [Change] button.
   Select the weekly charge [Change] button on the Charge Setting screen to open the Weekly Charge Setting screen.

2) Select the day to be set.
   Click the day to be set, and select the [Set] button from the submenu. The Time Zone Set-up window opens.

3) Set the unit price and charge zone times.
   Set the start and end times for the charge zone, and select the unit price.
   • Unit price: Maximum five units
   • Time zone: Maximum 10 zones (per day)

4) Select the [OK] button on the Time Zone Set-up window.
   After setting the unit price and time zone, select the [OK] button on the Time Zone Set-up window.

   * Repeat steps 2) to 4), and set all days.
   * The settings can also be made from the keyboard.
   * When there is a seasonal period, set both the normal and seasonal charges.
     Change between the settings with the [Normal charges] and [Seasonal charges] button.

5) Set the unit price.
   Set the unit price in unit prices 1 to 5.

   * The settings can also be made from the keyboard.
   Click the box for unit prices applied to the heat storage charges.
      ☑ (Selected)
      ☐ (Not selected)

   * Set only the unit price being used. When using the seasonal charges or heat storage charges, set these unit prices also.
   * If electricity 1 and electricity 2 are selected with the batch button, all unit prices can be set in a batch.

6) Select the [OK] button to end the settings.
   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.

Normal/Season button

Set button
The unit price time zone can be set, copied, pasted or canceled.
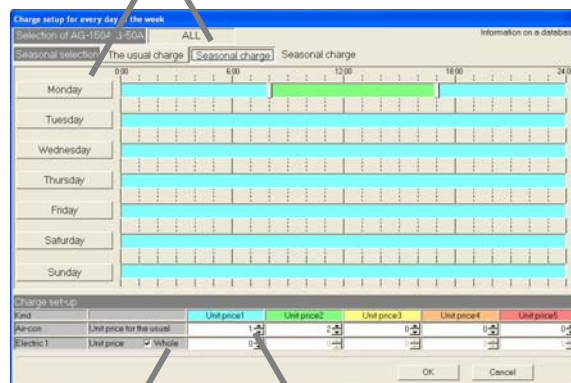
Weekly Charge Setting screen

Batch button
All unit prices can be set in a batch.

Unit price
Set the unit price.
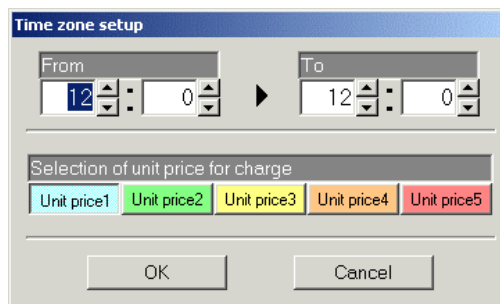
Time Zone Set-up screen

Note:
   • If there is an open field (including a 0 value) in the setting items, a caution appears. Check the settings.
   • The weekly charges can also be set from the Management window.
   • As the default, the time zone only for the unit price 1 is set. The default unit price is 0.
   • The air-conditioning charge's "charge percentage" is calculated using the unit price set on this screen, even for the power apportionment billing (manual electric amount input) function (*1).
       *1: Power apportionment billing function without WHM connected.
   • The unit prices are also used for the annual charge settings, so take care when making any changes.

Copying, pasting and deleting charge time zones

Copy, paste or delete the charge time zones.

[Procedure]
1) Select the day buttons.

A submenu opens when the day buttons on the Weekly Charge Setting window is clicked.

2) Select the [Copy], [Paste] and [Delete] buttons.

Copy : The details set for that day's time zone are copied when the [Copy] button is clicked.

Paste : The copied time zone settings are pasted when the [Paste] button is clicked.

Delete : The details set for that day's time zone are deleted, and only the default time zone setting in unit price 1 is set when the [Delete] button is clicked.
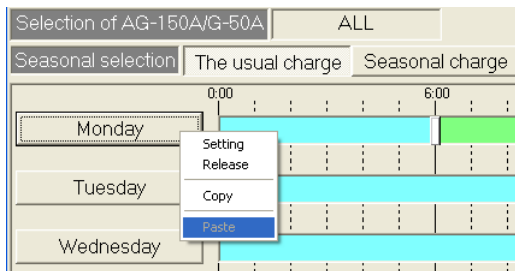
Time zone delimiter mark
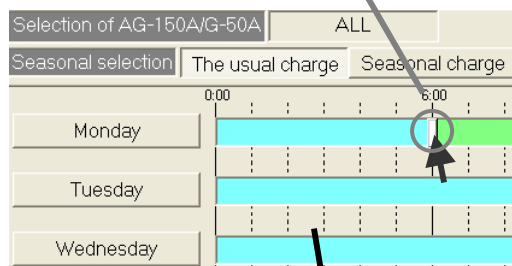
Changing the pattern

This function can be used to change the set pattern.
[Procedure]
1) Drag the time zone delimiter mark.

The time zone's delimited time can be moved by dragging the delimiter mark.

Time movement increment: 10 minutes

Change the unit price selection

The unit price in a certain time zone of a set pattern can be changed.
[Procedure]
1) Select the time zone.

Click the charge time zone to be changed. The Time Zone Set-up window opens. (Unit: 1 minute)

2) Select the applicable unit price.

Click the button for the unit price to be changed.
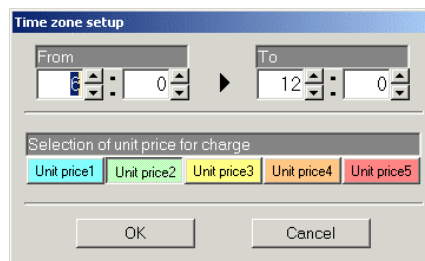
8.16.6   Annual charge setting

The charge time zone for days that do not apply to the weekly charge settings, such as holidays and summer vacation, can be set in the annual charge time zone. The charge time zone for up to 50 days up to 24 months (including current month) can be set in advance.

To set the annual charge zones, first set the charge zone patterns (up to five in patterns 1 to 5). Then, assign patterns to days such as the holidays or summer vacation. The values for the weekly charge zones are used so the unit prices do not need to be set.

Pattern button
Select the annual pattern.
Up to five patterns can be set.

Annual setting states
The state of the annual charge settings is displayed.
Blue:
 Settings for corresponding pattern
Light blue:
 Settings for other pattern

All Cancel button
All annual charge settings can be canceled.
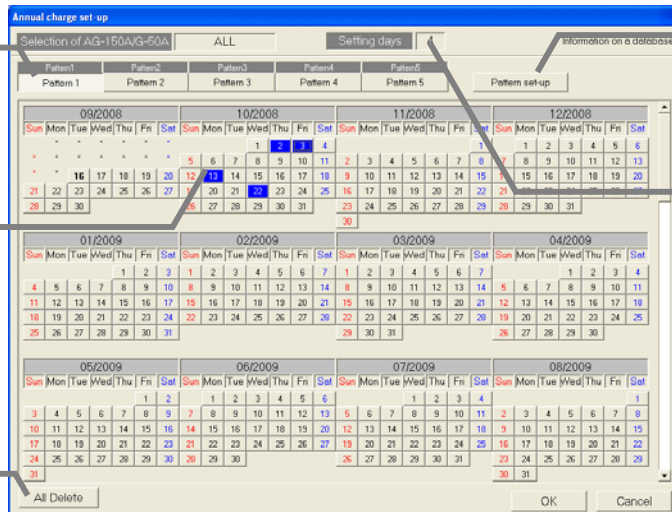
Pattern Set/Change button
The setting window for setting the annual pattern opens when this button is clicked.

No. of days set in year
The number of days for which annual charges are set are displayed.

Annual Charge Setting screen

Set the pattern and charge time zone

[Procedure]

1) Select the annual charge [Change] button.
   Select the annual charge [Change] button on the Charge Setting screen to open the Annual Charge Setting screen.

2) Select the [Pattern Set/Change] button.
   Select the [Pattern Set/Charge] button on the Annual Charge screen to open the Annual Charge Pattern Set-up screen.
   * As the default, only the time zone for the unit price 1 is set.

3) Click the pattern button, and select [Set].
   The Time Zone Set-up window opens.

4) Set the applicable unit price and charge zone times.
   Set the start and end times for the time zone, and select the unit price on the Time Zone Set-up screen.
   * The time can also be set from the keyboard.

5) Select the [OK] button to end the settings.
   After setting the charge time zone, select the [OK] button on the Time Zone Set-up screen. The settings can also be input from the keyboard.
   * Repeat steps 2) to 4) and set the required patterns.

6) Select the [OK] button.
   The Annual Charge Pattern Set-up window closes, and the Annual Charge Setting window opens.

7) Select the Pattern button.
   Click and select the button for the time zone pattern to be set.

8) Select the date.
   Click the date for which the annual charges in that pattern are to be set.
   The date box changes to blue, and the annual charges are set.

9) Select the [OK] button to end the settings.
   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.

Pattern button
The pattern can be set, canceled, copied, pasted or the pattern name changed.
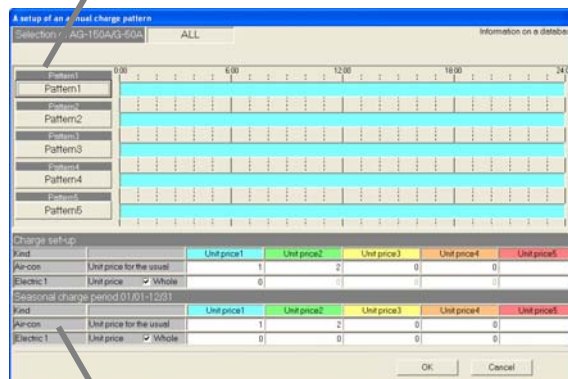
Annual Charge Pattern Set-up screen

Unit price display
Indicates the normal/seasonal unit price. The unit price is set with the weekly charges.
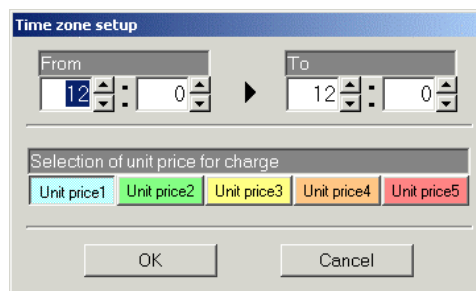
Note:
- If there is an open field (including a 0 value) in the setting items, a caution appears. Check the settings.
- The annual charges can also be set from the Management window.

Displaying the annual charge settings

The settings from the current month to 24 months in advance are displayed in the annual charge settings. The annual charge settings following the current day can be changed.

Colors used for date box in calendar

Blue : Annual charge is set for target pattern
Dark gray : Annual charge is set for non-target pattern
Light gray : No annual charge is set

Setting the annual pattern name

A name (example: holiday setting) can be set for patterns 1 to 5 on the Annual Charge Pattern Set-up window.

[Procedure]

1) Select the Pattern button.

   A submenu opens when the pattern button is pressed on the Annual Charge Pattern Setting screen.

2) Select the [Pattern Name Set] button.

   The Pattern Name Set-up window opens when the submenu [Pattern Name Set] is selected.

3) Set the pattern name

   A pattern name, indicating the application, etc., can be set. This name appears on the Annual Charge Setting screen.

   *   Up to 10 characters can be set.

4) Select the [OK] button to end the settings.

   *   If the [Cancel] button is clicked, the settings are canceled and the Annual Charge Pattern Set-up screen opens.
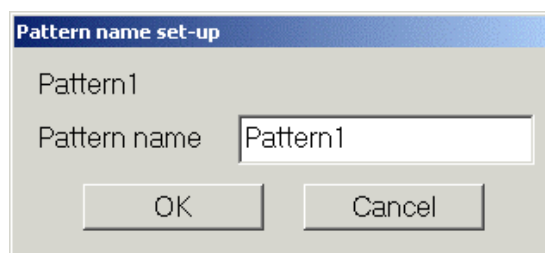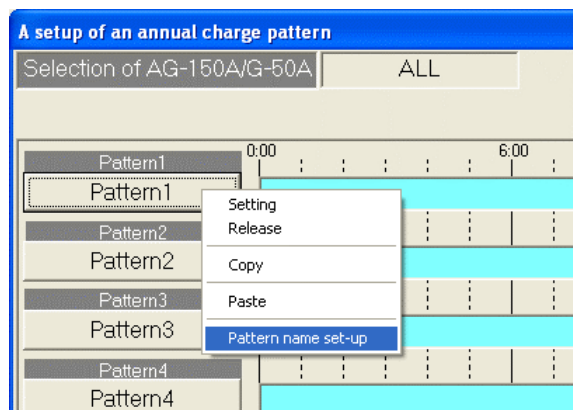
Changing the pattern

The set pattern can be changed.

1) Select [Pattern Set/Change].

   The Annual Charge Pattern Set-up screen opens when the [Pattern Set/Change] button is selected on the Annual Charge Setting screen.

2) Change the details set for the time zone.

   The procedure is the same as changing the pattern or copying, pasting and deleting the weekly charge pattern.

3) Select the [OK] button to end the settings.

Note:
   •   The date of the annual charges used in the pattern are also affected when the pattern is changed.
   •   The annual charges can also be set from the Management window.

Cancel the annual charge pattern

1) Select the date for which an annual charge is set.

   Click the date for which the annual charge pattern is to be canceled. The setting is canceled if it is the same as the selected pattern.

2) Select the [Pattern Cancel] button from the submenu.

   If the selected date differs from the selected pattern, the submenu appears. Select the [Pattern Cancel] button, and cancel the pattern assignment set for that date.

110
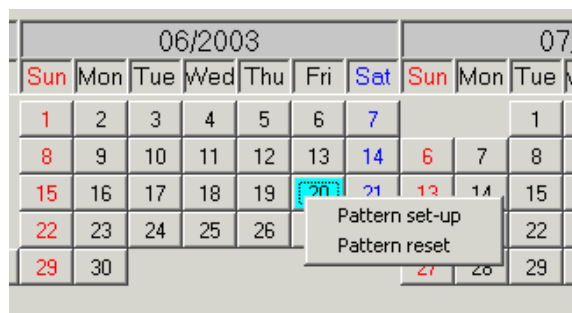
8.16.7 Setting the meter unit price

Set the unit price for the meters other than the watt hour meter. The unit price can be set for the normal period and season period.

Setting the meter unit price

The unit price for the gas, water and calorific value meter can be set. The time zone and start time, etc., are the same as the air-conditioner.

Charge time zone display
The unit price's time zone is displayed. The details set for the air conditioner are displayed and used for the time zone.

Day display

Normal charge/ seasonal charge button
The window can be switched between the Normal Charge and Seasonal Charge window

Time zone delimiter mark display
The time zone delimiter is displayed.

Charge setting
The meter unit price can be set.

Batch button
The unit prices 1 to 5 can be set in a batch. Default: Batch

Unit price
The unit price is set.

Meter Unit price Set-up screen

Set the unit price.

[Procedure]

1) Select the meter unit price [Change] button.

   Select the meter unit price [Change] button on the Charge Setting screen to open the setting screen.

2) Set the unit price.

   Set the unit price for each meter.

   * Set all unit prices 1 to 5. The settings can also be made from the keyboard.
   * All charge rates can be set in a batch by selecting the batch button.

   If a season period applies, set both the normal and seasonal charges.
   (Switch with the [Normal Charge] and [Seasonal Charge] button.)

3) Select the [OK] button to end the settings.

   * If the [Cancel] button is clicked on, the settings will be canceled and the Rate Setting screen will open.

111

8.17 Energy Saving/Peak Cut Set-up

Set the energy saving and peak cut.

The AG-150A/G-50A for energy saving operation, the control state of the indoor units in each operation block, and the control status of each outdoor unit is set for energy saving. The watt hour meter subject to the control measurement and the control status at each level is set for the peak cut setting. The peak cut function can be set only when a watt hour meter/meter connection is enabled and the air conditioner watt hour meter is connected.

Table   Energy saving and peak cut setting items

Item		Setting details	Remarks
Block	Contents of control	No control, temperature control, ventilator/thermo OFF control, stop control	
	Control time (*1)	3 min., 6 min, 9 min, 15 min, 30 min.	Select only when control is valid
	The difference of temperature (*2)	Deactive, Active (1°C unit between 3°C and 9°C)	Select only when control is valid
Outdoor unit	Contents of control	No control, performance save rate (90%, 80%, 70%, 60%)	
	Control time	3 min., 6 min, 9 min, 15 min, 30 min.	Select only when control is valid

*1: Set the time to control for 30 minutes.
*2: The "The difference of temperature" disables the energy saving (level 0) control if the temperature exceeds the difference of the set temperature and intake temperature during energy saving (level 0).

8.17.1   Energy saving setting
8.17.1.1   Setting Procedures and Restrictions
Before setting or changing the energy saving function, check the precautions.

Preparing to set the energy saving function
[Procedure]
1) Click the [Energy Saving] button.
    From the initial window, click on the [Energy Saving] button in the System Settings group.
2) Click the [OK] button after checking the display contents.
    Check the details displayed in the warning, and then click the [OK] button.
    *   If the [Cancel] button is clicked on, the settings will be canceled and the initial window will open.

    The energy saving function is set in the following order.
    Step 1 Energy saving setting

Energy saving setting preparation screen

8.17.1.2   Energy saving setting (Step 1)
Monitor the energy saving details set in the AG-150A/G-50A.
1) Click the [Monitor] button.
    The energy saving details already set will appear in the window.

Set the AG-150A/G-50A for energy saving control
1) Select the AG-150A/G-50A No. with the ▼ button.
    Select the AG-150A/G-50A for energy saving control by clicking ▼.

Note:
• By setting "Whole building" for AG-150A/G-50 No., all operation blocks (outdoor units) can be set to energy saving in a group.
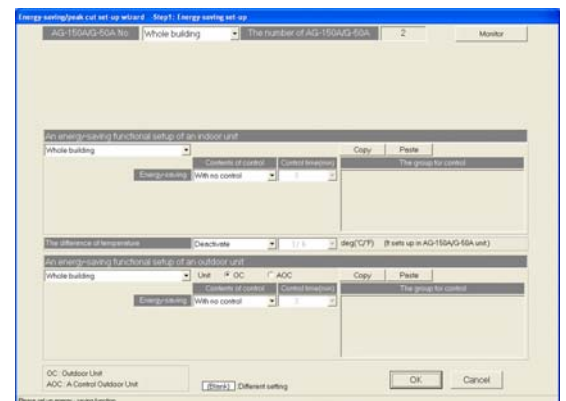
Energy saving setting screen

Batch setting for the "Whole building"

If "Whole building" is selected and not all AG-150A/G-50A units are set to the same settings, those fields that have different settings for different AG-150A/G-50A units will appear blank.

If it is not necessary to change the setting for any item, leave the item blank as it is.

To change the settings, select an appropriate option for the blank field.

In the case of TG-2000A Ver. 5.10 or earlier and Ver. 5.20, the fields cannot be left blank. Change the settings so that the settings for all G-50A will be the same.

Set the energy saving function for the indoor units

1) Select the operation block to be set with the ▼ button.
   Select the operation block to be set by clicking ▼.

2) Select the control details with the ▼ button.
   Select the control details for energy saving operation by clicking ▼.
   Control details: No control
   Temperature control
   Ventilator operation (Thermo OFF)
   Operation stop

3) Select the control time with the ▼ button.
   Select the control time for energy saving operation by clicking ▼.
   The following times can be set when a setting other than "No control" is selected for the control details.
   Control time: 3 minutes
                 6 minutes
                 9 minutes
                 15 minutes
                 30 minutes

4) Repeat steps 1) to 3).
   Repeat steps 1) to 3) for the operation blocks set for energy saving.

> Note:
> • The target indoor units are displayed in the "Control group" field.
> • If the settings are the same for each block, use the "Copy" and "Paste" functions to make the process easier.

Set blocks excluded from energy saving operation

5) Select the excluded functions with the ▼ button.
   Select the whether functions are excluded from energy saving operation by clicking the ▼ button.

6) Select the excluded temperature difference with the ▼ button.
   Select the conditional temperature difference to be excluded from energy saving operation by clicking ▼.
   Setting temperature difference: 3 deg. to 9 deg. (1 deg. increments)

> Note:
> • These settings excluded from energy saving operation are batch settings for each AG-150A/G-50A.
> • "Temperature difference" means the difference between the suction temperature and the set temperature during cooling and the difference between the set temperature and suction temperature during heating. If the degree of temperature difference exceeds the preset value, the unit will be excluded from the energy save control to maintain the comfort level.

Setting the energy saving function for the outdoor unit

1) Select the outdoor unit to be set with the ▼ button.
   Select the outdoor unit to be set by clicking ▼.
   If "OC" is selected on the Option under Unit, outdoor units other than A-control models can be selected (Outdoor unit addresses will be displayed.)
   If "AOC" is selected, A-control models of outdoor units can be selected (The outdoor unit addresses and the group names will be displayed.)

2) Select the control details with the ▼ button.
　　Select the control details for energy saving operation by clicking ▼.
　　Control details: No control
　　Performance save rate 0.6 to 0.9 (0.1 increments)
3) Select the control time with the ▼ button.
　　Select the control time for energy saving operation by clicking ▼.
　　The following times can be set when a setting other than "No control" is selected for the control details.
　　Control time: 3 minutes
　　　　　　　　　6 minutes
　　　　　　　　　9 minutes
　　　　　　　　　15 minutes
　　　　　　　　　30 minutes
4) Repeat steps 1) to 3).
　　Repeat steps 1) to 3) for the outdoor units set for energy saving.

Note:
- The indoor units connected to the target outdoor units are displayed in the "Control group" field.
- If the settings are the same for each outdoor unit, use the "Copy" and "Paste" functions to make the process easier.

Finish setting the energy saving function, and send the set details to the AG-150A/G-50A
1) Click on the [OK] button.
　　When finished with the settings, click on the [OK] button.
　　The set details will be sent to the AG-150A/G-50A and the Energy Saving Setting screen will close.

Caution
Energy save function on the outdoor unit
- Only the inverter models of A-control outdoor units can be put on the energy save control.
- When the settings are transmitted to AG-150A/G-50A, only the settings for the inverter models of A-control outdoor units will be made. Do not make the energy save setting for the constant speed models of A-control outdoor units, for the wrong settings can be made for some of the constant speed models of A-control outdoor units.
- Transition to the setting screen will take some time because AG-150A/G-50A monitors the information on the A-control outdoor units.
- To make the settings for the energy save function for the first time, the constant speed models of A-control outdoor units will be displayed if AG-150A/G-50A is not connected, because the information on the unit cannot be monitored.
- In the option menu under "Unit," "OC" stands for outdoor units other than A-control models, and "AOC" stands for A-control outdoor units.
- When the energy save setting is monitored on the G-50A, using the monitor refresh button, the connected A-control outdoor units will be displayed only when the G-50A version is 2.90 or later. If the version is 2.80 or older, energy save function for A-control outdoor units is not supported.

8.17.2　Peak Cut Setting

<Setting>

STEP1, 2 Stated separately "Weighing instrument setting"

STEP1, 2 Stated separately "DIDO, AI and PI controller setting"

STEP2 Stated separately "General control PLC setting"

AG-150A or G50A

Concept

Monitors electric energy

PLC (installed software for electric energy count)
Electric energy monitor method

WHM

Counts electric pulse

*Either method will be used.
Selects with user setting2.
(cannot be used in conjunction)

Monitors electric energy

MCP(PI controller)
Electric energy monitor method

WHM

Counts electric pulse

Reports demand level

PLC (installed software for demand input PLC)
Demand controller method

Demand controller

Demand level contact

Caution
• Be sure to check the peak cut function for proper operation to check the peak cut control settings.

Note (example of setting peak cut control details):
- With peak cut control, average power for the next 30 minutes (demand value) is estimated based on the changes in power, and control is executed.
  Thus, even if the level value is not exceeded at the current value, energy saving control is gradually applied on the estimated level so that the energy saving level does not rise suddenly.
- During peak cut control, the maximum average power value is input in level 4, and the [30 minutes] [Stop] (always stopped) items are set for all blocks.
- Depending on the outdoor unit model being used, it may take time to track the air conditioning load. Take this into consideration when setting.
- Set a value with sufficient allowance over the contact value for level 4 (maximum level).
- Increase the higher energy saving expectations in the control details as the level increases.
- Set the peak cut control with level 4 (maximum level) when using demand controller whose level contact is 3 or less.

[Setting example] * These are just examples and must be set according to each building's environment.

		Target	Control details	Control item	Remarks
High	Level 4	Block	Off control	30 minutes	
		Outdoor unit	None	–	
	Level 3	Block	Fan control	6 minutes	
		Outdoor unit	Performance save rate 60%	30 minutes	
	Level 2	Block	Fan control	3 minutes	
		Outdoor unit	Performance save rate 70%	30 minutes	
	Level 1	Block	Temperature control	3 minutes	
		Outdoor unit	Performance save rate 90%	30 minutes	
	Level 0	Block	Temperature control	3 minutes	* Always set as required for the energy saving setting.
Low		Outdoor unit	None	–	

(Energy saving expectation — vertical axis from Low to High)

The block (indoor unit) and outdoor unit control can be combined at the same level.

During energy saving control
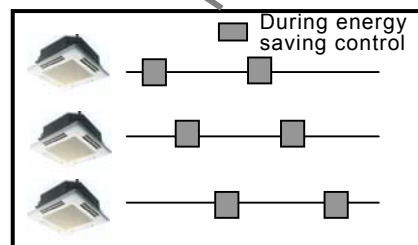
☐ : 3-minute energy saving control

8.17.2.1 Setting Procedures and Restrictions
Before setting or changing the peak cut function, check the precautions.

Preparing to set the peak cut function
[Procedure]
1) Click the [Energy Saving] button.
From the initial window, click on the [Energy Saving] button in the System Settings group.
2) Click the [OK] button after checking the display contents.
Check the details displayed in the warning, and then click the [OK] button.
  * If the [Cancel] button is clicked on, the settings will be canceled and the initial window will open.

The energy saving function is set in the following order.
Step 1 Peak cut WHM setting *1
Step 2 Peak cut setting *2
*1: It appears in case of WHM connection.
*2: Although the setting begins with Step2 when the demand control unit is connected, Step1 appears on the setting screen.

Peak cut setting preparation screen

8.17.2.2 Peak cut WHM setting (Step 1)
Monitor the peak cut WHM details set in the AG-150A/G-50A.
1) Click the [Monitor] button.
If peak cut WHM is already set, the set details will appear in the screen.

Set the peak cut WHM
 [In the case of using PLC]
1) Select with the peak cut WHM ▼ button.
Select the WHM used to judge the peak cut control by clicking on ▼.
2) Click the [OK] button.
After setting the peak cut WHM, click on the [OK] button. The screen will shift to the next Step.

 [In the case of using PI controller]
1) Select with the peak cut WHM ▼ button.
Select the WHM used to judge the peak cut control by clicking on ▼.
2) Click the [OK] button.
After setting the peak cut WHM, click on the [OK] button. The screen will shift to the next Step.

Peak cut WHM setting screen
(In the case of using PLC)

> Note:
> • The one of Air conditioner/Electricity1/Electricity2 can be set to the peak cut WHM.
> • During peak cut control (for watt hour meter connected with PI controller), the AG-150A/G-50A monitors only one watt hour meter. Up to 3 AG-150A/G-50As can be connected with the initial AG-150A/G-50A when monitoring the watt hour meter with other AG-150A/G-50A s(*1).
>   (*1) Controlled based on the peak cut control level of one previous minute
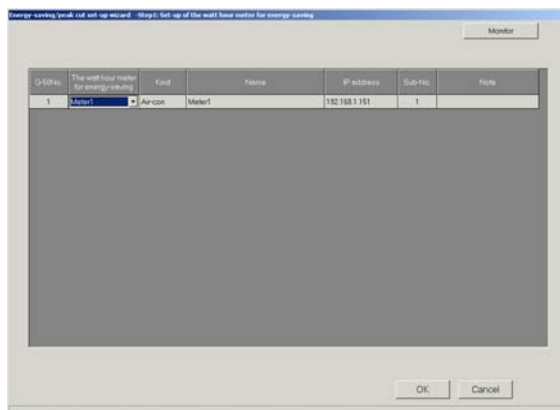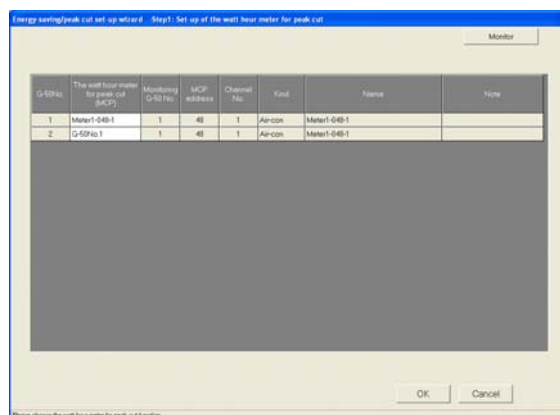
Peak cut WHM setting screen
(In the case of using PI Controller)

8.17.2.3 Peak cut setting (Step 2)
Monitor the peak cut details set in the AG-150A/G-50A.
1) Click the [Monitor] button.
   If peak cut is already set, the set details will appear in the window.

Select the AG-150A/G-50A for peak cut control
1) Select the AG-150A/G-50A No. with the ▼ button.
   Select the AG-150A/G-50A for peak cut control by clicking ▼.

Note:
• By setting "Whole building" for AG-150A/G-50 No., all operation blocks (outdoor units) can be set to energy saving in a group.
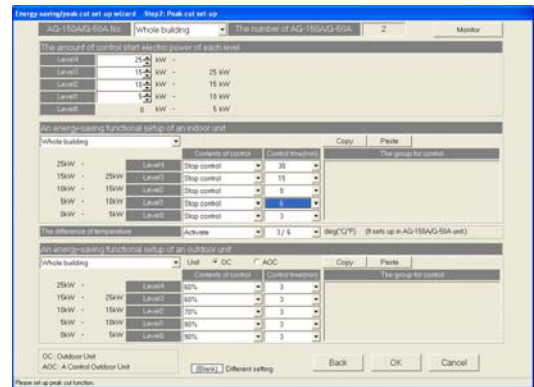
Peak cut setting screen

Batch setting for the "Whole building"
If "Whole building" is selected and not all AG-150A/G-50A units are set to the same settings, those fields that have different settings for different AG-150A/G-50A units will appear blank.
If it is not necessary to change the setting for any item, leave the item blank as it is.
To change the settings, select an appropriate option for the blank field.
In the case of TG-2000A Ver 5.10 or earlier and Ver. 5.20, the fields cannot be left blank. Change the settings so that the settings for all G-50A will be the same.

Set the control start electric amount
1) Set level 1 with the ▲/▼ buttons.
   Set the level 1 control start electric amount with the ▲/▼ buttons.
2) Set levels 2 to 4 with the ▲/▼ buttons.
   Set the control start electric amount for levels 2 to 4 with the ▲/▼ buttons.

Set the peak cut function for the indoor units
1) Select the operation block to be set for each level with the ▼ button.
   Select the operation block to be set for each level by clicking ▼.
   The number of levels set with the control start electric amount can be set.
2) Select the control details with the ▼ button.
   Select the control details for energy saving operation by clicking ▼.
   Control details: No control
                    Temperature control
                    Ventilator operation (Thermo OFF)
                    Operation stop
3) Select the control time with the ▼ button.
   Select the control time for energy saving operation by clicking ▼.
   The following times can be set when a setting other than "No control" is selected for the control details.
   Control time: 3 minutes
                 6 minutes
                 9 minutes
                 15 minutes
                 30 minutes
4) Repeat steps 1) to 3).
   Repeat steps 1) to 3) for the operation blocks set for energy saving.

Note:
- The target indoor units are displayed in the "Control group" field.
- If the settings are the same for each block, use the "Copy" and "Paste" functions to make the process easier.
- When ventilator/thermo OFF control is selected, the thermo OFF (performance save) command will be sent to the free plan model, and the ventilator mode changeover command will be sent to the K control model. When thermo OFF control is selected, the remote controller's display will not change, so energy saving control can be carried out without anyone knowing about it. When temperature control is selected, the set temperature will change +2°C during cooling, and -2°C during heating.

Set blocks excluded from energy saving operation

1) Select the excluded functions with the ▼ button.
   Select the whether functions are excluded from energy saving operation by clicking the ▼ button.
2) Select the excluded temperature difference with the ▼ button.
   Select the conditional temperature difference to be excluded from energy saving operation by clicking ▼.
   Setting temperature difference: 3 deg. to 9 deg. (1 deg. increments)

Note:
- These settings excluded from energy saving operation are batch settings for each AG-150A/G-50A.

Setting the energy saving function for the outdoor unit

1) Select the outdoor unit to be set for each level with the ▼ button.
   Select the outdoor unit to be set for each level by clicking ▼.
   The number of levels set with the control start electric amount can be set.
2) Select the control details with the ▼ button.
   Select the control details for energy saving operation by clicking ▼.
   Control details: No control
                    Performance save rate 0.6 to 0.9 (0.1 increments)
3) Select the control time with the ▼ button.
   Select the control time for energy saving operation by clicking ▼.
   The following times can be set when a setting other than "No control" is selected for the control details.
   Control time: 3 minutes
                 6 minutes
                 9 minutes
                 15 minutes
                 30 minutes

4) Repeat steps 1) to 3).
   Repeat steps 1) to 3) for the outdoor units set for energy saving.

Note:
- The indoor units connected to the target outdoor units are displayed in the "Control group" field.
- If the settings are the same for each outdoor unit, use the "Copy" and "Paste" functions to make the process easier.
- The setting method for the A-control outdoor units is the same as that for the energy save setting, and the same cautionary notes apply to both.

Finish setting the peak cut function, and send the set details to the G-50A

1) Click on the [OK] button.
   When finished with the settings, click on the [OK] button.
   The set details will be sent to the G-50A and the Peak Cut Setting screen will close.

8.18   Night Mode Set-up
8.18.1   Setting Procedure and Restrictions
Confirm the precautions before setting or changing the night mode function.

Prepare to set the night mode

[Procedure]
1) Select the [Night mode set-up] button.
   Click the [Night mode set-up] button located in the system setting group on the initial window.
2) Select the [OK] button after confirming the display contents.
   Check the contents of the alarm displayed and click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.
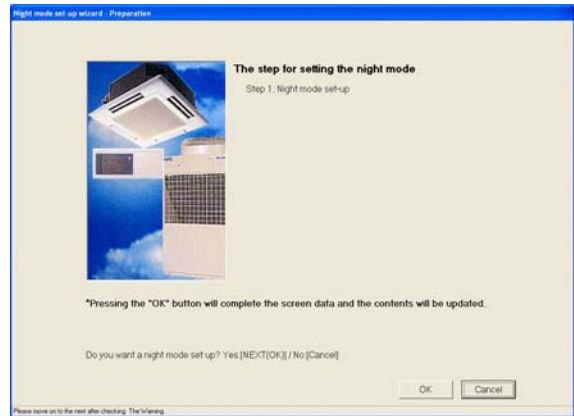
Night mode set-up preparation screen

Execute the Night mode set-up in accordance with the following procedure.
Step 1: Night mode set-up

AG-150A/G-50A selection field
Select the AG-150A/G-50A to be set.
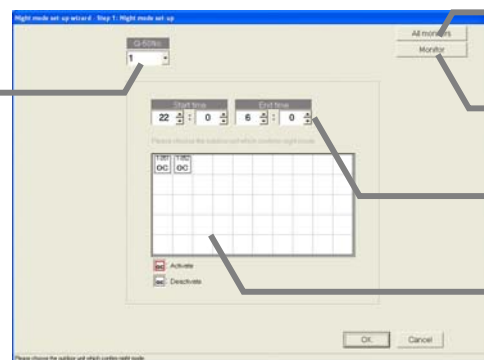
Monitor from all AG-150A/G-50A
Use this to monitor the set-up status from all connected G-50A units.

Monitor from AG-150A/G-50A
Use this to monitor the set-up status from the selected AG-150A/G-50A.

Start/End time setting field
Set the time to start and end the night mode.

Target outdoor unit selection field
Select the outdoor unit to be controlled with the night mode.

Night mode set-up screen

8.18.2   Night Mode Set-up (Step 1)

Monitor the night mode setting details set in AG-150A/G-50A.

[Procedure]
1) Click the [Monitor] button or [All monitors] button.
   If the night mode has already been set, the setting details will appear.

Set the AG-150A/G-50A subject to the night mode control.

[Procedure]
1) Use the "▲/▼" button to select the AG-150A/G-50A No.
   Click the "▲/▼" button to select the G-50A subject to the night mode control.

Set the outdoor unit for using the night mode function.

[Procedure]
1) Click and select the icon of the outdoor unit to be set.
   Click and select the icon of the outdoor unit to be set.
   The selected outdoor unit's icon will appear in a red frame.
2) Set the time to start and end the night mode.
   Click the "▲/▼" buttons to select the time to start and end the night mode.
   The time can be set in the range of "0 hours 0 minutes to 23 hours 59 minutes".

Note:
  • If the start time and end time are the same, the night mode will be applied for 24 hours.
  • Some outdoor units do not have the night mode function.

Finish the night mode set-up.

[Procedure]
1) Click the [OK] button.
   Click the [OK] button when finished with the settings.

8.19 System-changeover Set-up

The models "Auto" function is not available (Y series), use this function (automatic cooling/heating switching) to switch cooling/heating operation automatically with the change of indoor temperature. In this function, the cooling (heating) mode can be switched to the heating (cooling) mode automatically.

8.19.1 Setting Procedure and Restrictions

Confirm the precautions before setting or changing the Systrm-changeover (automatic cooling/heating switching) function.

Prepare to set the System-changeover

[Procedure]

1) Select the [system-changeover set-up] button.
   Click the [system-changeover set-up] button located in the system setting group on the initial window.

2) Select the [OK] button after confirming the display contents.
   Check the contents of the alarm displayed and click the [OK] button.

   * When the [Cancel] button is clicked, this setting is terminated to return to the initial screen.

Syatem-changeover set-up preparation screen

Execute the System-changeover (automatic cooling/heating switching) set-up in accordance with the following procedure.

Step 1: System-changeover set-up

AG-150A/G-50A selection field
Select the AG-150A/G-50A to be set.

Mode change over block selection field
Set the operation mode for each change over block.
Representation group, Auto change, Nothing

System-changeover set-up screen

Monitor from all AG-150A/G-50A
Use this to monitor the set-up status from all connected AG-150A/G-50A units.

Monitor from AG-150A/G-50A
Use this to monitor the set-up status from the selected AG-150A/G-50A.

Representation group selection field
Select the representation group when using representation group control.

Group in mode change over block display field
The groups in the block are displayed.

8.19.2 System-changeover set-up (Step 1)

Monitor the System-changeover setting details set in AG-150A/G-50A.

[Procedure]
1) Click the [Monitor] button or [All monitors] button.
   If the System-changeover has already been set, the setting details will appear.

Set the AG-150A/G-50A subject to the System-changeover control.

[Procedure]
1) Use the "▼" button to select the AG-150A/G-50A No.
   Click the "▼" button to select the AG-10A/G-50A subject to the System- changeover control.

Set the change mode for each mode change block.

[Procedure]
1) Use the "▼" button to select the change mode.
   Click the "▼" button to select the change mode for each mode change block.

Mode change over block selection field
Set the operation mode for each change over block.

Group in mode change over block display field
The groups in the block are displayed.

Change mode	Control details
Nothing	The System-changeover (automatic cooling/heating switching) function is deactivated. (Default)
Representation group (Main group)	The mode is changed between cooling and heating based on the set temperature and intake temperature of the set representation indoor group. * When the air conditioning units in the "Representation group" are stopped or operated in the FAN or AUTO mode, "Averaging" mode is used instead of the "Representation group" mode to control the system.
Averaging	The mode is changed between cooling and heating based on the performance rate, set temperature and intake temperature of each indoor group in the mode change block. * The operation mode of the groups of units that are stopped or operated in the FAN or AUTO mode will not be changed.

Note:
- Only the M control indoor unit of CITY MULTI is subject to control. The A-control and K-control indoor units are excluded.
- The mode of operation is not switched to the indoor unit under Stop and Fan operation.
- The mode change block is a collection of the indoor units in a refrigerant system unit.
  If the group which the refrigerant system straddled exists, those refrigerant systems will become one mode change block.
- R2 also will appear as the choice for the setting, but do not select it.
- The system-changeover function of the AG-150A/G-50A units should not be used together with the system-changeover function of the outdoor units.

Set the representation group

[Procedure]

1) Select the representation group with the "▼" button.

Select the representation group for each block selected with [Representation group mode] by clicking on "▼".

Representation group selection field
Select the representation group when using representation group control.

Finish the auto change over set-up.

[Procedure]

1) Click the [OK] button.

Click the [OK] button when finished with the settings.

Note: **Mode change block in System-changeover function**

Normally the air conditioner group belonging to one refrigerant system is one block. However, if an air conditioner group extending over several refrigerant systems is set, all air conditioner groups belonging to both refrigerant systems will be handled as the same mode change block. (Refer to drawing below.)
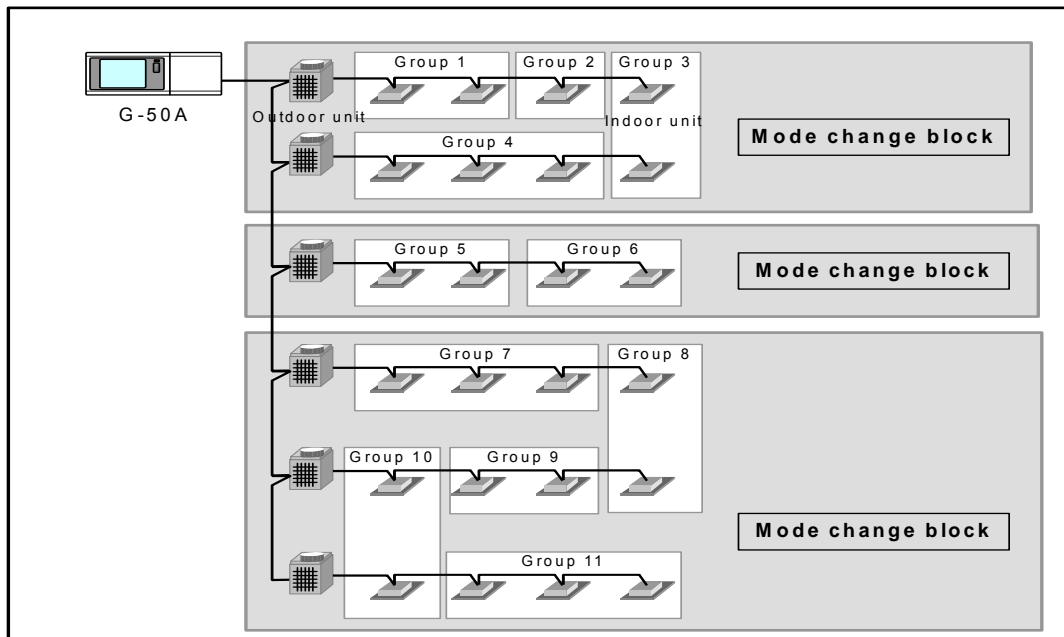
8.20 Time Set-up

The time set-up function comes in two types, date/time set-ups and time monitor set-ups.

Function	Contents
Date/time set-up	Sets the date/time of all AG-150A/G-50A units and PLCs connected to the computer as soon as the PC date/time is set. * Be sure to set the current time on AG-150A/G-50A and PLC at the initial settings before starting the operation.
Time monitor	Confirms the difference in time between the time reference machine (AG-150A/G-50A No.1) of this system and all AG-150A/G-50A units and PLCs except for No. 1 and the PC.

* PC means a computer on which the integrated centralized control software TG-2000A operates.

<Precautions for using this function>
Basically with this system, the time does not need to be adjusted manually, except for the first time. (Excluding when correcting an error in the time.) When using the power apportioning billing function, do not adjust the time needlessly.
Never change the date after starting the power apportioning billing function.

[Description]
With this system, the air conditioner operation data is collected from the AG-150A/G-50A main unit and the electric amount data is collected from the PLC. The air-conditioning charges are calculated based on this data using the various amounts and unit prices set in this integrated centralized control software (TG-2000A). When there is a difference in time between the PLC or AG-150A/G-50A main unit and PC on which the integrated centralized control software TG-2000A operates, it becomes unable to correctly execute the calculation.
Thus, TG-2000A, AG-150A/G-50A and PLC times are adjusted each day to correct any time error between the devices. (**The time adjustment is based on the No.1 AG-150A/G-50A.**)

Set the date/time.

[Procedure]
1) Select [Time set-up] button.
   Click the [Time set-up] button located in the system setting group on the initial window.
2) Select the [Date/time set-up] button.
   Click the [Date/time set-up] button on the time set-up select screen.
3) Select the part you want to change.
   Click "Year", "Month", "Day", "Hour", "Minute", or "Second" you want to change.
4) Select the "▲/▼" button.
   Use the "▲/▼" buttons to change the numbers of the part to be changed.
5) Click [OK] button after finishing all settings.
   When done with these settings, click the [OK] button.
   * When the [Cancel] button is clicked, this setting is terminated to return to the initial window.

Note:
• The alarm message shown in the following illustration is displayed when the [Date/time set-up] button is clicked.
  OK　　: Displays the date/time set-up screen.
  Cancel : Returns to the system set-up screen without displaying the date/time set-up.
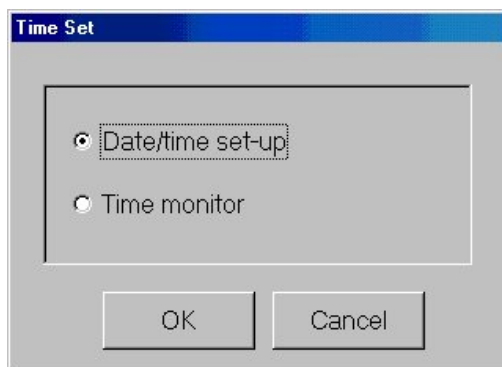
Time set-up select screen
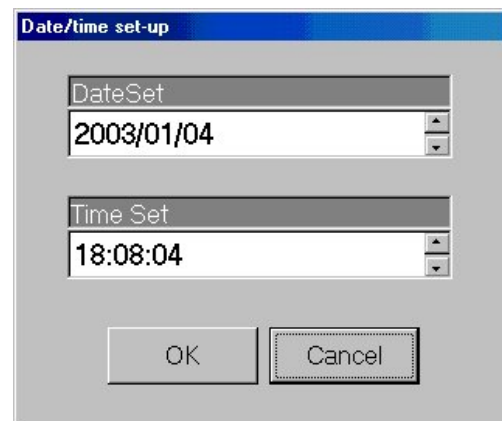
Date/Time set-up screen

Time Change Not Allowed dialog box

124

Monitor the time.

Monitor the year/month/day of the PC and connected AG-150A/G-50A, PLC and TG-2000A.

[Procedure]

1) Select [Time set-up] button.

   Click the [Time set-up] button located in the system setting group on the initial window.

2) Select [Time monitor].

   Click the [Time monitor] button on the time set-up select screen.

3) Select the [Monitor] button.

   In this case, click the [Monitor] button on the time monitor screen. When the button is clicked, the difference between the date/time of all AG-150A/G-50A units connected to the computer on which the integrated centralized control software TG-2000A operates and the reference machine is displayed.

   * There is a difference of several seconds depending on the monitor timing.

4) Select [OK] button.

   When the time confirmation is completed, click the [OK] button, and the initial window returns.

Time monitor screen

Monitor button

Display of PC date/time

Difference from reference machine (AG-150A/G-50A No.1)

Display of AG-150A/G-50A, PLC and TG-2000A data/time

No	Setting time	Gap with standard (sec)
G50No.1	9/16/2008 13:17:58	—
G50No.2	9/16/2008 13:17:56	-2
TG-2000A	9/16/2008 13:17:57	-1

Monitor time of PC
9/16/2008 13:17:57
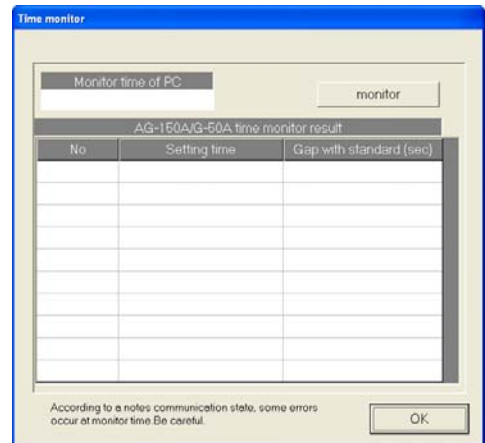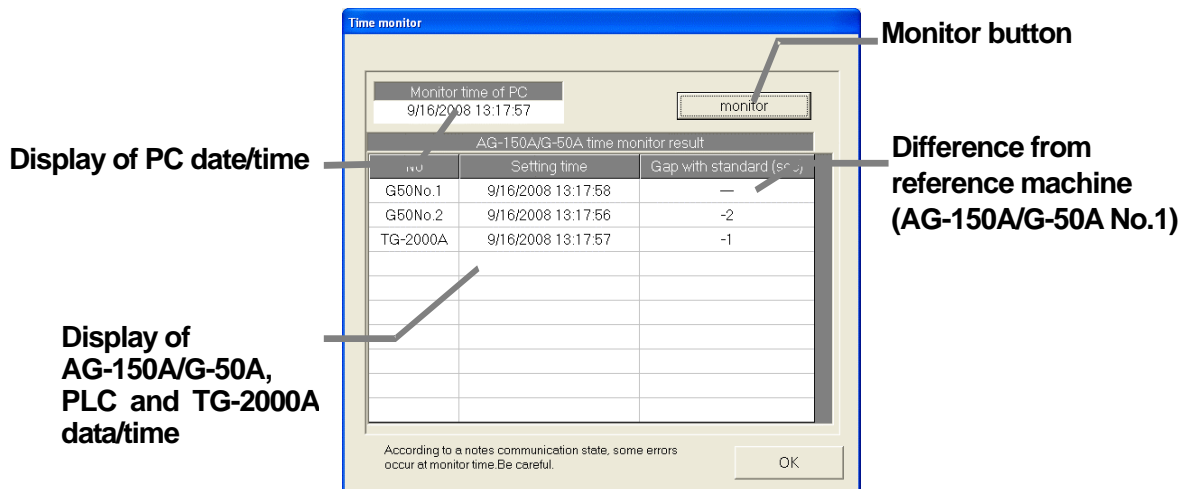
New time monitor screen

8.21 Monitoring and Changing the Meter Present Value

The current meter values can be monitored and displayed from the Charge Data Maintenance screen. The present value can also be changed.

Checking the meter monitor

1) Select the meter.
   From the Charge Data Maintenance screen, select the meter (WHM) to monitor using the ▼ button.
2) Select the [Present Value Monitor] button.
   Click the [Present Value Monitor] button. The Meter Present Cumulative Value screen opens.
3) Check the monitor, and then select the [OK] button.
   Click the [Present Value Monitor] button again. The meter cumulative value is displayed.

Present Value Monitor button
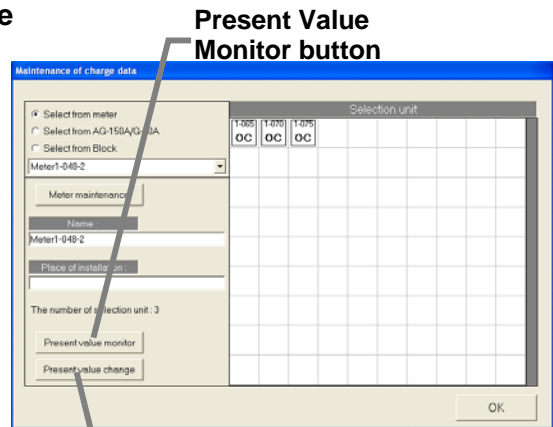
Present Value Change button

Charge Data Maintenance screen

Note:
- The connection with the meter (WHM) is checked on this screen.
- The present value monitor's cumulative value is regularly monitored for approx. ten seconds during test run, so there may be a time lag of up to 10 seconds.
- This function cannot be used with the power apportioning billing without WHM connected (manual power amount input).
- The meter's present value can also be monitored from the Management screen.
  Refer to the Management Section 8.6 in the instruction manual.

Meter's Present Cumulative Value screen

Changing the meter's present value

1) Select the [Present Value Change] button and set the value to be changed.
   From the Charge Data Maintenance window, select the meter to monitor using the ▼ button. Then, click the [Present Value Change] button.
   The Present Value Change screen, on which the value can be changed, opens.
   * Turn OFF the power breaker for the target WHM's measurement wire before starting. In addition, make sure that the other meters are stopped.
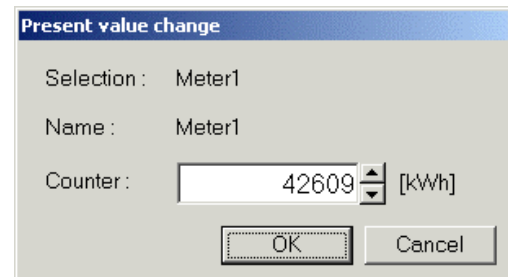
Meter's Present Cumulative Value Change screen

Note:
- The present cumulative value can be matched to the actual meter's cumulative value using this function.
- The values used for power apportioning billing cannot be changed with this function.
- This function is valid only when using the measurement meter (for PLC and PI controller).

9. Charge Data Correction and Remedy

9.1 Result of Air-conditioning Charge Calculation

Air-conditioning charge calculation by the proportionally divided power charge function is based on the indoor unit operation amount data. When data cannot be collected and calculation is unmatched for some reason, irregular processing is performed. "Maintenance of charge data" and "Remedial apportioning setting" may be necessary depending on the contents of this irregular processing.
The table below shows assumed cases.

Table: Assumed cases and recovery method (For Without WHM connection proportionally divided power charge (manual input of the electric amount))

Assumed case	Air-conditioning energy monitoring screen	Charging data status	Correction method
PC failure (HDD failure)	(Display impossible)	Charging data destroyed	Operation amount data monitor + remedial apportioning *1
PC failure	Red characters (abnormal)	Forwarded to next day and apportioned to recovery day (Collected for several days and apportioned)	No repair is required. *2
AG-150A/G-50A communication error	Black characters (normal)		
Ag-150A/G-50A main unit failure	Black characters (normal)	Apportioned, but data is not correct (Interval: Error day ~ recovery data)	Charging data maintenance
System information setting error	Black characters (normal)	Apportioned based on set information	Charging data maintenance

*1: To repair, the operation amount during the time to be repaired is monitored, and the remedial apportioning function is used.

*2: When a forwarding that extends past the settlement-of-accounts day occurs, it is recommended to correct it in the "Charge data maintenance" screen. It is unnecessary to perform this procedure when there is an agreement that allows the charge to be collected, even if the forwarded settlement occurs.

Note:
- If there are two or more assumed cases, make overall judgment.
- When forwarding of apportionment spans the settlement-of-accounts day, the forwarded portion is added to the next month. When you want to separate this month's portion and next month's portion, divide the proportion division parameter forwarded and collected by "Charge data maintenance" screen by the number of days in next month and this month.
- The charge data status is irregularly processed according to the case which occurred.

Table: Assumed cases and recovery method (For With WHM connection proportionally divided power charge (direct fetching of the electric amount to the PC))

Assumed case	Air-conditioning energy monitoring screen	Charging data status	Correction method
PC failure (HDD failure)	(Display impossible)	Charging data destroyed	Remedial apportioning
PC failure (with backup)	Red characters (abnormal)	Charging data is abnormal and cannot be apportioned (Interval: Last backup day ~ recovery day)	Remedial apportioning
Watt hour meter failure (Monitoring impossible)	Black characters (normal)	Forwarded to next day and apportioned to recovery day	(Unnecessary) *1
Watt hour meter failure (Monitoring possible)	Black characters (normal)	Forwarded to next day and apportioned (Data may not be correct)	Charging data maintenance
AG-150A/G-50A communication error	Black characters (normal)	Forwarded to next day and apportioned to recovery day (Collected for several days and apportioned)	(Unnecessary) *1
AG-150A/G-50A main unit failure	Black characters (normal)	Apportioned, but data is not correct (Interval: Error day ~ recovery data)	Charging data maintenance
Calculation unmatch	Black/red characters (Normal/abnormal)	Irregular processing performed and apportioned or forwarded to next day	(Unnecessary) *1
System information setting error	Black characters (normal)	Apportioned based on set information	Charging data maintenance

*1: When a forwarding that extends past the settlement-of-accounts day occurs, it is recommended to correct it in the "Maintenance of charge data" screen. It is unnecessary to perform this procedure when there is an agreement that allows the charge to be collected, even if the forwarded settlement occurs.

Note:
- If there are two or more assumed cases, make overall judgment. The recovery order is shown below for reference.
  Maintenance of charge data > Remedial apportioning setting > Unnecessary
- When forwarding of apportionment spans the settlement-of-accounts day, the forwarded portion is added to the next day. When you want to separate this month's portion and next month's portion, divide the proportion division parameter forwarded and collected by "Charge data maintenance" screen by the number of days in next month and this month.
- The charge data status is irregularly processed according to the case which occurred.
- For system information setting error, there may be cases when remedial apportioning is impossible depending on the type of error setting.

The following describes the outline repair method.

	Overview	Remarks
Maintenance of charge data (See section 9.2) *1	Change the proportional division parameter data you want to correct in indoor units for each day. After all changes are complete, recalculate and calculate proportionally the apportioned electric power and air-conditioning charge.	Use when such phenomena as those shown below occur, and you want to correct or change the proportional division parameter or apportioned electric power. • Generation of forwarded and collected apportioning value • AG-150A/G-50A failure • Computer crash etc.
Remedial apportioning (See section 9.5)	The air-conditioning charge is calculated from the total of air-conditioning charge for the interval to be apportioned. Then, the air-conditioning charge is calculated and the normal interval air-conditioning charge.	Use un-apportioning generated by the following as the object. • HDD failure • Watt hour meter failure (monitoring impossible) • Computer crash etc.

*1: For With WHM connection, this function makes it possible to monitor the current integrated value of the watt-hour meter.

9.2　Maintenance of Charge Data

It is possible to change or correct the proportional division parameter, which is the proportionally divided value data of the unit, or the apportioned electric power and electric power amount of WHM every day.

9.2.1 Preparing for Charging Data Maintenance

Prepare and perform the following for charging data maintenance:

(1) Maintenance object and date check
Check the object indoor unit and date whose proportional division parameter or apportioned electric power, etc. you want to correct due to a failure.
Check by referring to the failure recovery data and charging data display color (normal, abnormal, maintenance), system configuration, etc.

(2) Reference data preparation
Prepare the normal apportioning data and indoor unit FAN operation amount, capacity save ratio, and other data.
* The FAN operation amount, capacity save ratio, and indoor unit parameter of Cooling capacity, Power input and Auxiliary heater can be displayed on "Maintenance of charge data" screen.

(3) Correction charge data study
Study the maintenance object indoor unit, interval (date) and charging data correction value from (1) and (2) above.

At the end of the preparations above, perform charging data maintenance.

Note:
- For the charging data result (normal, abnormal, maintenance), refer to section "9.2.3 Unit Data Maintenance".
- The contents will appear in the air-conditioning charge after recalculation at the end of charging data maintenance.
- The "subsidiary heater time" value is not used. The "subsidiary heater capacity" value is always dealt with as 0, because there is no indoor unit with a subsidiary heater.

9.2.2 Maintenance Methods and Restrictions

Follow these steps to display the Charge Data Maintenance screen.

Display the Maintenance screen.
[Procedure]
1) Click [Maintenance of charge data] button.
From the Initial window, click the [Maintenance of charge data] button in the Maintenance group. The Charge Data Maintenance screen appears.

Note:
- The items that can be changed in this screen are the proportional division parameters of indoor units. The parameters of indoor units and outdoor units can be performed the maintenance separately.
- Charge Data can be stored for up to 122 days excluding the present day.

Unit Data Maintenance
→ Refer to section 9.2.3
Watt hour Meter Data Maintenance
→ Refer to section 9.2.4
Test Operation Monitor of Watt Hour Meter
→ Refer to section 9.2.5
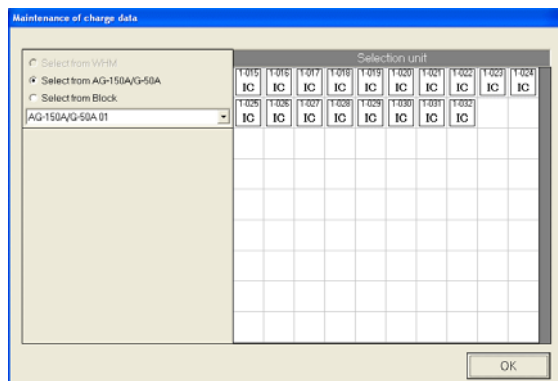
Charge Data Maintenance screen
(Without WHM　connection)
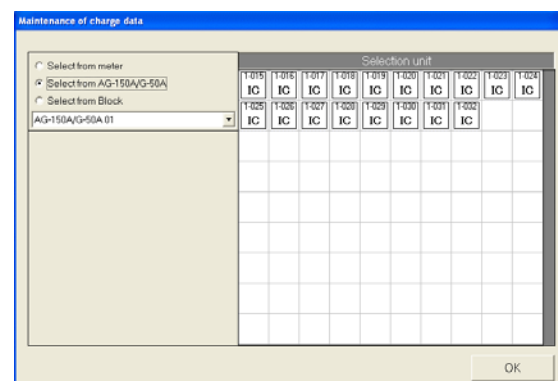
Charge Data Maintenance screen
(With WHM　connection)

[Without WHM connection]

Proportional division parameter for the outdoor unit:

The proportional division parameter calculated with the power used by the indoor unit concerned, as that used by the outdoor unit (cryogenic) using the proportionally divided reference data, indoor unit capacity, and other data selected.

Proportional division parameter for indoor unit:

The proportional division parameter calculated with the power used by the indoor unit concerned, as that used by the indoor unit itself (power and auxiliary heating) using the fan operation time, power input, and other parts of the indoor unit, etc.

[With WHM connection]

Apportioned electric power for outdoor unit:

The electric power proportionally divided from the electric power used by WHM with the power used by the indoor unit concerned, as that used by the outdoor unit (cryogenic) using the proportionally divided reference data, indoor unit capacity, and other data.

Apportioned electric power for indoor unit:

The electric power proportionally divided from the electric power used by WHM with the power used by the indoor unit concerned, as that used by the indoor unit itself (power and subsidiary heating) using the fan operation time, power input, and other parts of the indoor unit, etc.

9.2.3 Unit Data Maintenance

The proportional division data for every indoor unit may be changed. This screen displays the capacity save ratio, thermo-ON time, the FAN operating time or subsidiary heater operation time for regular hours and off hours.

Maintaining Apportioned Unit Data

[Procedure]

1) Select the selection method.

Click the [Select from AG-150A/G-50A] or [Select from charging block] check box in the upper left part of the charge data maintenance screen.

2-1) Select the selection method from AG-150A/G-50A.

Select the [Select from AG-150A/G-50A] button in accordance with the procedure shown in 1), and click the ▼ mark in the [AG-150A/G-50A No.] selection box to select the AG-150A/G-50A No. to be displayed. When it is selected, the indoor unit connected to the AG-150AG-50A is displayed in the unit selection column.

2-2) Select the selection method from the charging block.

Select the [Select from charge block] button in accordance with the procedure shown in 1), and click the ▼ mark in the [Select of charge block] selection box to select the charge block to be displayed. When it is selected, the group set to the charge block is displayed in the unit selection column.

Click the group, which sets the indoor unit to be displayed. When it is selected, the indoor unit set to the group is displayed in the unit selection column.

2-3) Select the selection method from WHM.

Select the [Select from WHM] button in accordance with the procedure shown in 1), and click the ▼ mark in the WHM box. When it is selected, the unit set to WHM is displayed in the unit selection column. If the outdoor unit is clicked when the outdoor unit is displayed, the indoor unit composing of the outdoor unit is displayed in the unit selection column.

Select button   **AG-150A/G-50A No. select box**
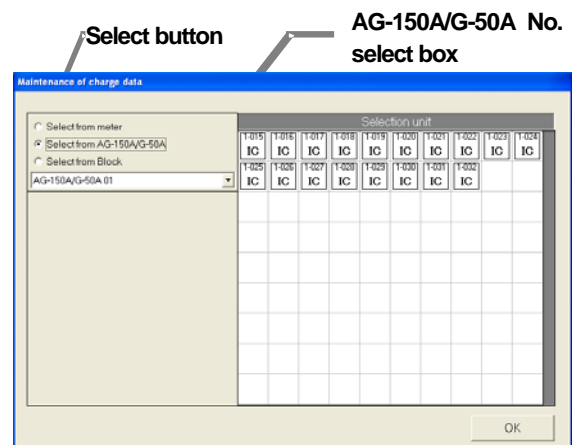
Charge data maintenance screen
(select from AG-150A/G-50A)

Charge block select   **Group select**
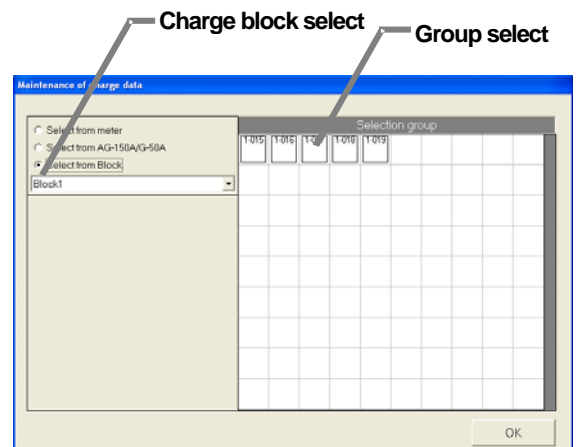
Charge data maintenance screen
(select from charge block)

3) Click the indoor unit icon.
   Select the icon of the unit to be displayed or changed.
   The "indoor unit data maintenance" screen appears.
4) Select the proportional division parameter.
   Select the cell of the proportional division parameter
   to be changed (regular hours, off hours).
   The cursor appears in that cell.
5) Make changes to the data.
   Enter the changes to the apportioned data (for each
   time slot).
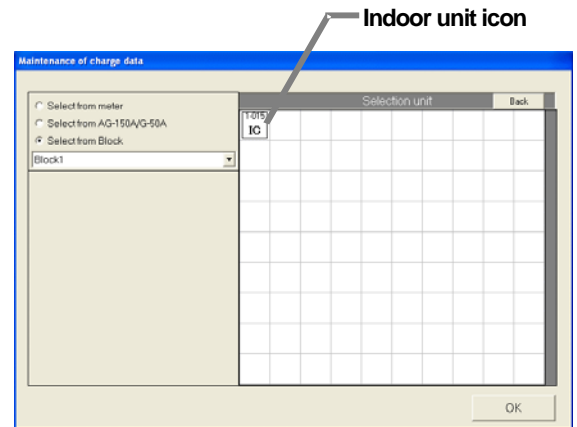
Charge data maintenance screen
(display of indoor unit icon)

<Correction method>

Click the cell of the proportional division parameter to be changed.

When the cell is clicked to be selected, the "▲/▼" button is displayed in the cell. Click the "▲/▼" button to correct the data. (The numeric value can also be directly input with the keyboard.)

When the [Corrective calculation] button located in the lower part of the screen is clicked after correcting the data for all dates or at the halfway point of correcting the data, the results of the air-conditioning block charge, calculated in accordance with the corrected data, is displayed together with the pre-correction total proportional division parameter. It can be used as a guideline for data correction.

<Caution>
- The value calculated using the [Corrective calculation] button is a temporarily calculated value. To reflect it in the air-conditioning charge, recalculate on the air-conditioning charge screen after correcting the data for all indoor units.
- The apportioned electric power and proportional division parameters are displayed or input up to one digit after the decimal point. The display value is rounded at the 2nd digit after the decimal point.

[Without WHM connection]

Proportional division parameter

[Unit Data Display Colors]
Black : Normal
Red : Maintenance
Blue : Abnormal
Green : Un -apportioned
Gray : No data

[Unit price]
Unit price * : 5 types

(Within(day) :Regular hour)

(Outside(night) :Off hour)

Recalculation

button

Indoor Unit Data Maintenance screen

[With WHM connection]
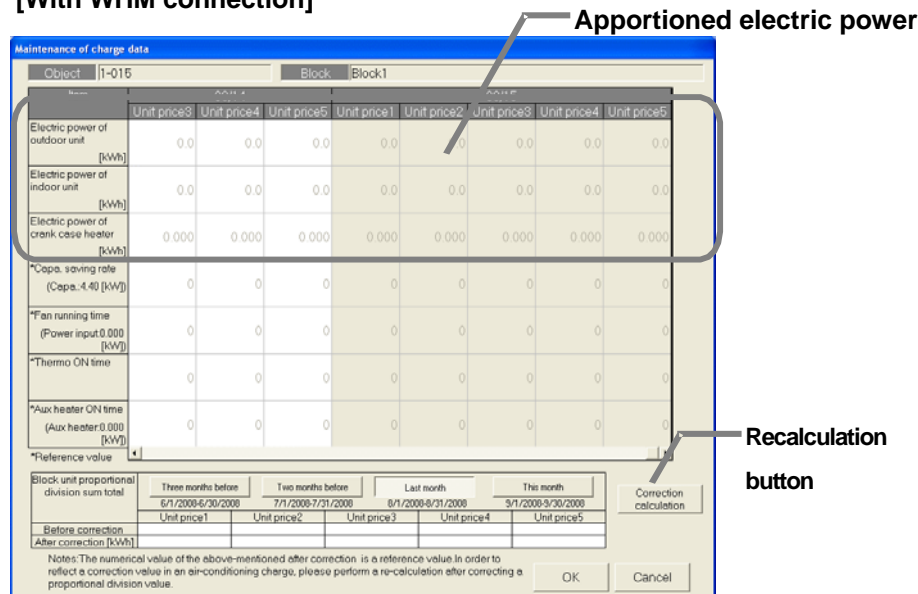
Indoor Unit Data Maintenance screen

6) Repeat steps 1) to 5), and change all the indoor units.
   Repeat these steps to make changes to the apportioned data value to be changed.
7) Click [OK] button.
   When done with these settings, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Note:
- If the apportioned data of the unit (proportional division parameter value and apportioned electric power) is corrected, the value is reflected in air-conditioning charge when it is recalculated.
  The data for that day may not be correct if there was an abnormality on the previous day. (For example, when the previous day was abnormal, it may be forwarded to the next day.)
- The data for that day may not be correct if there was an abnormality on the previous day. (For example, when the previous day was abnormal, it may be forwarded to the next day.)
- The proportional division parameter displayed in red is changed to maintenance (blue) and recalculated and appears in the air-conditioning charge results. (It is, however, necessary to perform maintenance for all abnormal color (red), no data color (gray), and un-apportioned data color (green) located within the air-conditioning charge settlement period.)
- When the outdoor unit apportioning mode is 2, the crank case heater apportioned electric power also changes.

<Maintenance example>
Example of "Maintenance of charge data" during AG-150A/G-50A failure (proportionally divided electric power charge (Without WHM connection))   **→ Refer to Appendix 3.**
1) Correct the proportional division parameter (during failure) to "0", by which the value is changed to blue.
   * Including appointed day of repair
2) Select and correct the failure period correction method from the following plans.
   Plan (1) : Use of average value for one week before failure
              → Calculate the proportional division parameter (given by multiplying the number of days of the failure period using the average value for one week before failure as the proportional division parameter for a day, and input it as a proportional division parameter for the repair date.
   Plan (2) : Use of normal period only
              → Use the proportional division parameter only for the normal period, but not the proportional division parameter for the number of all indoor units used during the failure period. Correct the proportional division parameter for all indoor units during the failure period to "0".

3) When the integration has already been made, select Recalculation to settle the charge for the month concerned.

> Note:
> - It is necessary to perform the charge data maintenance on the date appointed for AG-150A/G-50A repair, after the next day, when the AG-150A/G-50A is replaced.
> - Since the data cannot be fully corrected when the AG-150A/G-50A is replaced, it is necessary to perform a special correction during failure.

<Maintenance example>

Example of "Maintenance of charge data" during AG-150A/G-50A failure (proportionally divided electric power charge (electric amount pulse count))   → **Refer to Appendix 3.**

1) Correct the apportioned electric power (during failure) to "0", by which the value is changed to blue.
   * Including appointed day of repair
2) Select and correct the failure period correction method from the following plans:
   Plan   : Use of average value for one week before failure
            → Calculate the power used during the failure period proportionally by percentage using the average value for one week before the failure as the apportioned electric power for a day, and input it as apportioned electric power for the repair date.
3) When the integration has already been made, select Recalculation to settle the charge for the month concerned.

9.2.4 Watt Hour Meter Data Maintenance

This data may be changed. The unit prices 1 to 5 in the WHM data are displayed.

Maintaining watt hour Meter Data

[Procedure]

1) Click the "▼" button and select a watt hour meter.
   When the "▼" button in the watt hour meter field in the charging data maintenance screen is clicked, all the watt hour meters are displayed. Selecting the watt hour meter you want to display and clicking the [Meter Maintenance] button displays the watt hour meter maintenance screen.
2) Select the watt hour meter data.
   Select the cell of the data to be changed (regular hours, off hours). The cursor appears in that cell.
3) Make changes to the data.
   Enter the changes to the data (for each time slot).
4) Repeat steps 1) to 3).
   Repeat these steps to make changes to the part to be changed.
5) Click [OK] button.
   When done with these settings, click the [OK] button.
   * If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the initial window.

Watt Hour Meter Maintenance

[Watt Hour Meter Data Display Colors]
  Black : Normal
  Red   : Abnormal
  Blue : Maintenance
  Gray : No data

[Unit price]
  Unit price 1 to 5
   (Within(day)   :Regular hour)
   (Outside(night) :Off hour)

> Note:
> - Corrected watt hour meter data will appear in the air-conditioning charge after recalculation. However, only watt hour units' watt hour meters are the object. The corrected watt hour meter data does not appear at indoor units or watt hour meters connected to indoor units.
> - The data for that day may not be correct if there was an abnormality on the previous day.
>   For example, when the previous day was abnormal, it may be forwarded to the next day.
> - The proportional division electric power displayed in red is changed to maintenance (blue) and recalculated and appears in the air-conditioning charge results. (However, all the electric power displayed in red in the air-conditioning charge settlement-of-accounts term must be maintained.)
> - This function cannot be used for Without WHM connection proportionally divided electric charge.

9.2.5 Verify Test Operation of Watt Hour Meter

Follow these steps to display the watt hour meter monitor.

Watt hour Meter Monitor Function

[Procedure]

1) Select the watt hour meter.

   From the Charge Data Maintenance screen, select the meter to monitor using the "" button.

2) Click [Present Value Monitor] button.

   Click the [Present Value Monitor] button. The Watt Hour Meter Current Integrated Value screen appears for the selected meter.

3) Click [OK] button.

   When finished viewing these values, click the [OK] button.

   When the [Monitor] button is clicked, the watt hour meter integrated value is monitored again.

Note:
- This screen can be used to verify the connection to the watt hour meters.
- The test operation integrated value may have a time lag of 10 seconds to 2 minutes.
- This function cannot be used for Without WHM connection proportionally divided electric charge.
- WHM test operation can be performed at the Management screen also. Refer to section 8.5 of the Management manual.

WHM No. select
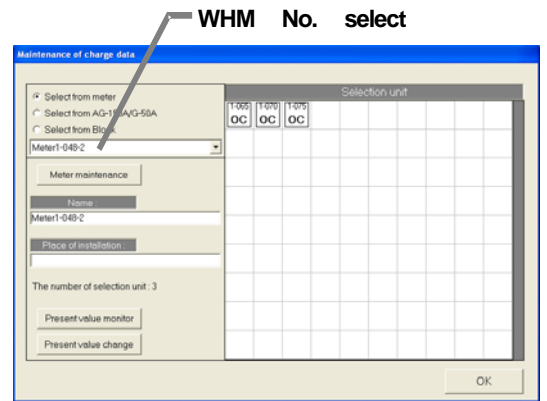
Charge Data Maintenance
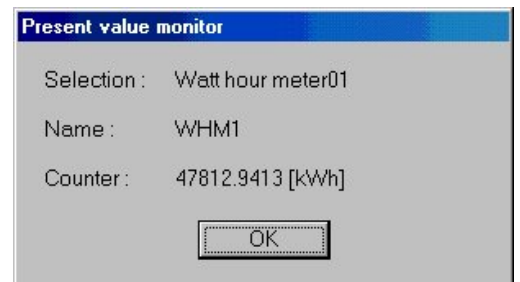
Watt Hour Meter Current Integrated Value

Changing the watt hour meter present value

1) Select the [Present Value Change] button, and set the new value.

   From the Charge Data Maintenance screen, select the meter to monitor using the "▼" button. Then, click the [Present Value Change] button.

   The Present Value Change screen, on which the value can be changed, opens.

   * Turn OFF the power breaker for the target watt hour meter's measurement wire before starting.
   * The data for charge calculation cannot be changed.
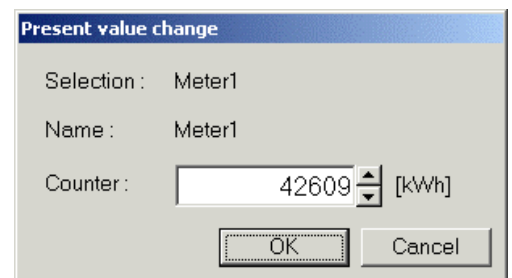
Meter's Present Cumulative Value

Change window

9.3 Operation Amount Data Monitoring

The indoor unit operation amount data saved in each AG-150A/G-50A, or the watt hour meter (including all meters) cumulative value data saved in each PLC can be read out using the operation amount and electric amount data monitor.

<Description of function>

The system monitors the operation amount for the indoor unit from all the AG-150A/G-50A units to calculate the proportionally divided power charge at 4:05 and after every day. (Operation amount of indoor unit: capacity save ratio, FAN operation time, thermo-ON time, auxiliary heater operation time)

The proportional division is not calculated properly when the system is unable to monitor because the power of the PC that the integrated centralized control software (TG-2000A) operates on is turned off, the PC is defective, or the LAN circuit or hub with the AG-150A/G-50A is defective. (The calculation result is correct, however, as the forwarded calculation is executed after the repair on the next day or at a later time, but the calculation result is displayed in red as an error (red).)

Because of the reasons shown above, the Operation amount data monitor function is used to monitor the operation amount data as a guideline (cannot be monitored) with the date designated using the charge data maintenance described in 9.2 or the charging remedy described in 9.5 when the maintenance of the proportional division parameter value or the apportioned electric power is performed.

<Caution>
Even if the operation amount data is monitored, it may not be executable in some cases due to the following reasons:
· When the data has not accumulated due to a power shutdown for over 24 hours of the AG-150A/G-50A
· When the data has not accumulated due to setting the time/date of the AG-150A/G-50A and PC forward by over 24 hours
· When the AG-150A/G-50A is replaced due to AG-150A/G-50A, PLC or PI Controller (MCP), failure
· While the current time is "22:00~0:30", the monitoring cannot be performed.
When the operation amount data is monitored by the system (2000 units) for one month, it takes approximately one hour.

Monitoring operation amount/electric amount data
[Procedure]

1) Click [Operation amount/Electric amount data monitor] icon.
Click the [Operation amount/Electric amount data monitor] icon of the maintenance group in the initial window.

2) Select the button for the target to be monitored.
Click the target data's [Operation Amount] or [Electric amount] data on the Operation Amount and Electric amount Data Monitor Setting screen.

3) Set the interval to be monitored.
Use click and the "▲/▼" buttons to set the interval the running data held by the AG-150A/G-50A is to be monitored.
* Numbers can be manually input from the keyboard.

4) Set the additional unit
If there are additional units or WHM, select the "An extension unit/WHM" optional button and click the "Select" button.
When setting the additional unit, set the additional unit and the installation date and then click the [OK] button.
* The monitor can be carried out in consideration of the period before the installation.

5) Click [OK] button.
When setting of the operation amount/electric amount data monitoring interval is complete, click the [OK] button. The operation amount data monitor confirmation screen appears.
* If the [Cancel] button is clicked, the settings are interrupted and the screen returns to the Operation amount/Electric amount data monitor setting screen.

6) Click [OK] button.
Confirm the monitoring interval at the operation amount data monitor confirmation screen. After confirmation, click the [OK] button. If it is determined automatically that the monitor-prohibit time is applicable.
When it is out of the prohibited time range, the operation amount/electric amount data monitor is started and the message "Please wait a moment" is displayed on the screen.
After the monitoring is terminated, the screen returns to the initial window.
* Since the monitor of the operation amount/electric amount data requires time, wait for a moment until the monitor is terminated.
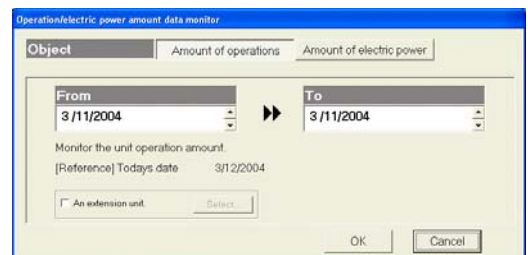
Operation amount/Electric data monitoring screen
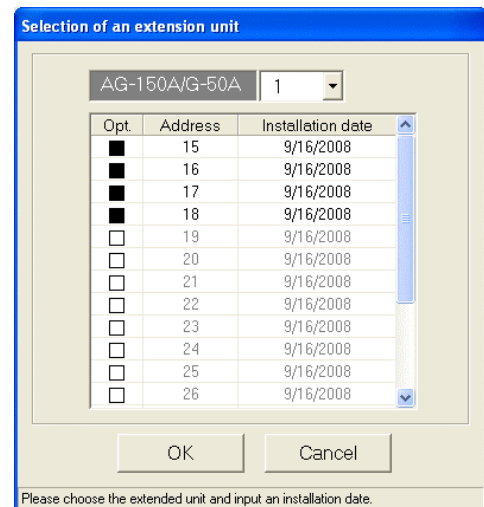
Selection of an extension unit screen
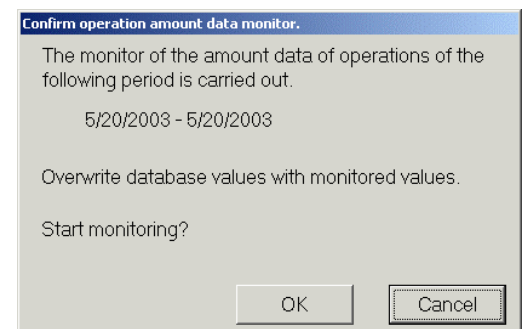
Operation amount/Electric amount data monitor confirmation screen

Note:
- The monitor of the operation amount/electric amount data is intended for all indoor units for the object day, in which the contents are written over the PC database on which the integrated centralized control software (TG-2000A) operates. Monitor only the necessary date.
- **Monitor the data for the last day after 7:00. (Monitor after 9:00 only when using the heat storage model.)**
- Even if the operation amount/electric amount data monitor is executed, it cannot use the results for the recalculation of proportionally divided power charges. In this case, use the "Maintenance of charge data" shown in section 9.2 or the "Charging remedy" shown in section9.5.
- Note that the data is not reflected in the "Maintenance of charge data" screen even if the operation amount/electric amount data is gathered using this function, but upon the output of the charge parameter data.

9.4 Charge Parameter Output

This function is used to output the operation amount data (integrated capacity save ratio of indoor unit, integrated FAN operation time, integrated thermo-ON time, (integrated auxiliary heater operation time)) and charge parameters to the file.

Note:
- The value stored in PC of TG-2000A is output unchanged. Contact us separately for the data generation method and other information.
  - * The values of the capacity save ratio, FAN operation time, thermo-ON time, and auxiliary heater operation time are integrated values. When the value exceeds "9999.99", it is returned to "0000.00".
  - * The meter data is integrated values. When the value exceeds "999999.99", it is returned to "000000.00".
- The file output is executed for each AG-150A/G-50A.
- The data for only up to 122 days from the previous day is saved. Data other than the saved data cannot be output.

Output the operation amount data, which is the charge parameters, to the file.
[Procedure]

1) Select [charge parameter output] menu.
   Select the [charge parameter output] located in the [Tool] menu in the initial window where the charge parameter output screen is displayed.
   * Note that this screen cannot be selected in the Management screen.

2) Select the output target
   Click and select the PLC or AG-150A/G-50A for the output unit type with the output selection "▼" button.

3) Set the interval.
   Use the "▲/▼" buttons to set the year, month, and day of the objective interval. An interval from the previous day to 122 previous days can be set.
   * The setting is executable regardless of whether the data for the date concerned exists or not.

AG-150A/G-150A select button
Output term setting
Output file name setting

Charge parameter output (set -up) screen

4) Set the file output destination.
   Set the file output destination folder. An existing folder can be selected by clicking the [Select] button.

Note:
- When a nonexistent folder is described as the file output destination and the [Output] button is clicked, the file is saved by creating a new folder.

5) Set the save filename and click the [Output] button.
   After setting the output destination and file name, click the [Output] button. The file is saved. After finishing, this screen closes.
   * Click the [Cancel] button to return to the Initial window.

\<Output file data format\>
The data format is CSV format. Data is output in ascending order.
A sample that uses Excel to fetch an output file is shown here.
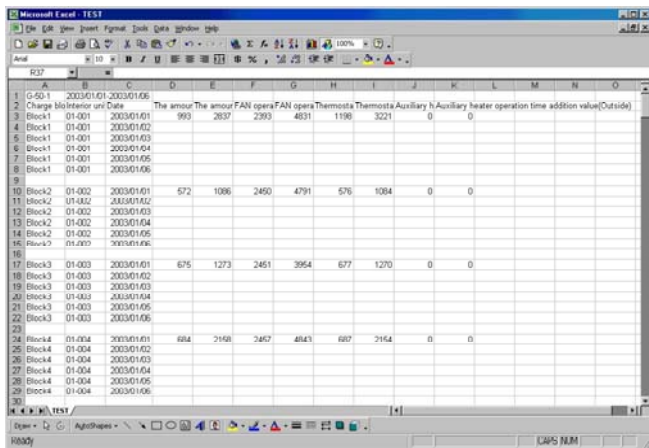
Output file Excel fetch screen (sample)

> Note:
> • When there is only one charge unit, it will basically be used as the charge unit 1, and the other charge unit values will not increment. (When using charge unit 1)
> • When the integrated value does not exist, "-99" is set or the integrated value is left blank.

\<Automatic charge parameter output\>
If the automatic charge parameter output function is enabled on the User setting window, the charge parameter will be automatically output. The file will be stored in the folder that is automatically created with a name that consists of the name of the folder that is selected as the destination file on the User setting and ¥yyyy¥mm¥, which indicates the year and the month.

> Charge parameter to be output
> Manual output: Outputs the data for the selected period
> Automatic output (Monthly output): Outputs the data for the period from the last month's cutoff date to this month's cutoff date.
> Automatic output (Daily output): Outputs only the data for the previous day

9.5 Charging Remedy
9.5.1 Remedial apportioning setting screen (RS-485)
(1) Check the items necessary for remedial apportioning.
When charging is not apportioned, the charging data is destroyed, etc., the air-conditioning charge can be calculated by a simple method.
The items which must be set depend on the assumed case and the charging configuration. The table below shows which setting items are required and are not required.

V shows that the item must be set.

Assumed case	Charging configuration	Settlement-of-accounts term	Total air-conditioning charge	Standard charge	Remedial apportioning interval	Power integrated Value	Remark
HDD failure (no backup)	1 system	V		V *1	V	V	Refer to section 9.5.2
	Multiple systems	V	V	V *1	V	V	
HDD failure (backup)	1 system	V		V *1	V		Refer to section 9.5.3
	Multiple systems	V	V	V *1	V		
Computer crash	1 system	V		V *1	V		Refer to section 9.5.4
	Multiple systems	V	V	V *1	V		
Watt hour meter failure (Monitoring impossible)	1 system	V		V *1	V	V *2	Refer to section 9.5.5
	Multiple systems	V	V	V *1	V	V *2	
System information setting error	1 system	V		V *1	V	V *2	Refer to section 9.5.6
	Multiple systems	V	V	V *1	V	V *2	

*1 When the settlement-of-accounts term is 1 month, the standard charge can be set.
Moreover, when remedial apportioning including the standard charge is not performed, it cannot be reflected in the air-conditioning charge result.

*2 The power integrated Value may have to be set depending on the failure cause or the contents of the setting error.

(2) Set the remedial apportioning setting items.

[Procedure]

1) Click [Remedial apportioning setting] button.
Click the [Remedial apportioning] button in the initial window. The remedial apportioning setting screen appears.

2) Set the apportioning interval (Calculation).
Use click and the "▲/▼" buttons to set the interval to be calculated by this remedial apportioning. An interval from the previous day to the past 122 days can be set.

3) Set the total air-conditioning charge.
Set the settlement-of-accounts term total air-conditioning charge. When the standard charge is included, the total air-conditioning charge also includes the standard charge for 1 month.
    *Numbers can be manually input.

4) Select the standard charge setting.
When the settlement-of-accounts term is 1 month, whether or not the standard charge is to be included can be selected. Select [Include] or [Not include] with the option button.

Remedial apportioning setting screen

5) Set the remedial apportioning interval.
Use click and the "▲/▼" buttons to set the remedial interval dates.

6) Set the power integrated value.
Displays the power integrated value at 00:00 hours of the remedial apportioning start day. (The integrated value at 24:00 hours of the previous day.) Select the □ field of the watt hour meter you want to change with the mouse and set or change the power integrated value. The integrated value field of the selected watt hour meter changes to a blue cell. When the integrated value data changes, the new data is displayed in blue.

Note:
   • The initial integrated value is the interval for the previous month.
   • When there is one electric power unit price, the total air-conditioning charge does not have to be set and it is not displayed.
   • [Include] standard charge can be selected only when the settlement-of-accounts term is 1 month.
   • Set the power integrated value only when necessary. The power integrated value initial value is the value stored in the database. When there is no data, a blank is displayed.
   • When the recovery day exceeds the settlement-of-accounts day, it recommends that this month and next month perform charging remedy.
   • **Refer to the execution examples for each assumed case starting from section 9.5.2.**

(3) Calculate remedial apportioning.
[Procedure]
1) Click [OK] button.
When the necessary settings at the remedial apportioning setting screen are complete, click the [OK] button.
The remedial apportioning confirmation screen appears.
2) Click [Yes] or [No] button.
Confirm remedial apportioning at the confirmation display screen, and click the [Yes] button.
The [Calculating] screen appears.

Checking

ⓘ Remedial calculation takes tens of minutes. Use remedial measures?

[OK]   [Cancel]
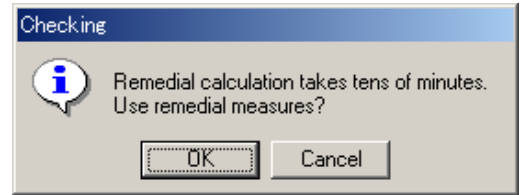
Remedial apportioning confirmation screen

Note:
- When the [OK] button in the remedial apportioning setting screen is clicked, the settings are checked for errors. If there is an error in the set contents, an alarm screen appears.
- Remedial apportioning calculation can be cancelled by clicking the [Cancel] button in the Calculating screen.
- Remedial calculation takes time. Time required varies depending on computer performance.

Counting

Currently counting.

Please wait for a while.

[Cancel]

Calculating

When there is an error in the remedial apportioning setting, a setting error warning message like that shown below is displayed.

Warning

⚠ Correction period is not within calculation period.

[OK]

Alarm display 1

Warning

⚠ Unable to calculate due to excessively low air conditioning charge in total. Increase the total.

[OK]
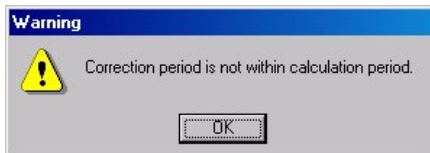
Alarm display 2

(4) Remedial apportioning calculated result display
At the end of remedial apportioning calculation, the remedial apportioning result screen appears.

Apportioning conditions display

Remedial air-conditioning charge display

Output button
The remedial results are output to a file.

Count save button
The remedial apportioning results are rewritten to settlement data.

Back button

End button

Remedial apportioning result screen

[Description of displays and buttons]
(1) Apportioning conditions display
Displays the counted and remedially apportioned conditions.
(2) Remedial air-conditioning charge
Displays the remedied air-conditioning charge calculated result in block and watt hour meter units.
Block units display is the remedial apportioning interval reference value.
(3) Output button
The remedial apportioning air-conditioning charge result can be output to a printer or file.
(4) Calculation save button
When the remedial apportioning air-conditioning charge result is the same as the calculated result (including the standard charge), it can be written over the air-conditioning charge result in month units.

(5) Back button
Returns to the remedial apportioning conditions setting screen.
(6) End button
Ends the remedial apportioning screen.

9.5.2 Remedy when computer HDD fails (no backup)
The following describes the remedy when the computer HDD failed and the charging data was lost.

1) HDD recovery
Recover the computer HDD by replacement, etc. and install the necessary Windows(OS).

2) TG-2000A installation
Install TG-2000A, database and this program.
*   Refer to the setup method and install.

3) System configuration and charging system restoration
Recover the system information by resetting the air-conditioning system configuration, charging system, etc.

4) Run the operation amount backup monitor.
Monitor backup of the operation amount before the recovery day. Set the interval from the preceding month's count end day to the day before the recovery day.
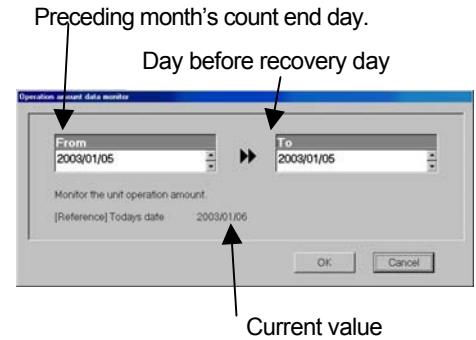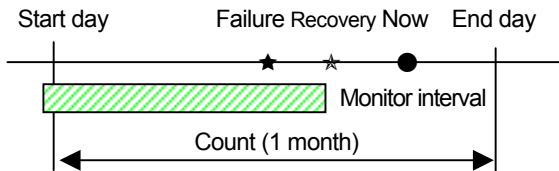
Preceding month's count end day.

Day before recovery day

Current value

Operation amount data monitoring screen

Note:
   •   Operation amount data backup monitoring for the failure day is also possible.
   •   Since the operation amount data is the integrated value, the data for the preceding month's count end day must also be monitored.

5) Wait until the day after the settlement-of-accounts day.
Continue normal operation up to the day after the settlement-of-accounts day.

Note:
   •   The system operates normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

6) Start remedial apportioning.
Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described with the time series example below.

Note:
   •   Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

7) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting screen. The initial value is the settlement-of-accounts term of the previous month.

8) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> - When there is one power charge (no time setting), the total air-conditioning charge does not have to be set. This item appears in gray.
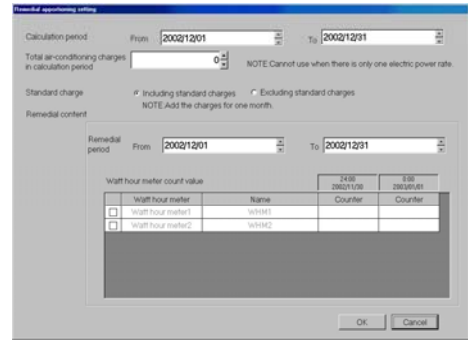
Remedial apportioning setting screen

9) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

10) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the settlement-of-accounts start day and the remedial end day is the settlement-of-accounts end day.

> Note:
> - "Recovery day" is the day the system was recovered from an HDD failure and normal operation was restarted.

11) Watt hour meter integrated value setting

Set the watt hour meter integrated value of each watt hour meter from the air-conditioning charge result (watt hour meter) for the month before last. The watt hour meter calculated result for the month before last is the watt hour meter integrated value for the last day. Use that value.

Air-conditioning charge Electric power meter(Standard)				
Costs calculation term:2002/12/01 - 2002/12/31				
Whm name	Installation place	Final day count value [kWh]	Electric power consumption [kWh]	Use power rates [EUR]
WHM1	""	46319.3	161	2622253
WHM2	""	5883	19.8	322173

Watt hour meter air-conditioning charge result

The watt hour meter integrated value for all the watt hour meters must be corrected and input. When the integrated value data changes, the display turns blue. The initial value before correction and input is a blank display.

When setting of the remedial apportioning screen is complete, perform section 9.5.1 "(3) Calculate remedial apportioning".

9.5.3 Remedy when computer HDD fails (backup)
The following describes the remedy when the computer HDD fails and the charge data is backed up.

1) HDD recovery

Recover from computer HDD failure by replacing the HDD, etc. and install the necessary OS.

2) TG-2000A installation

Install TG-2000A, database, and this program. Refer to the setup method and install.

3) System configuration and charging system restoration

Install the database backing up the air conditioning system configuration, charging system, charging data, etc.

Note:
- For the specific procedure, consult your distributor or sales company.

4) Operation amount backup monitoring

Monitor backup of the operation amount from the backup day to the recovery day. Set the start day as the backup day and the end day as the day before recovery day.
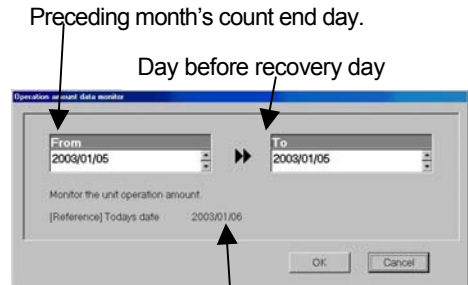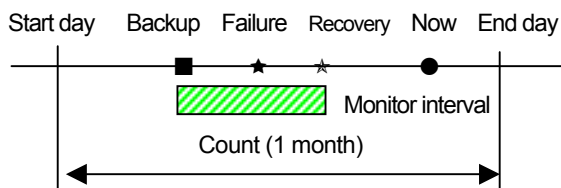
Operation amount data monitoring screen

Note:
- Operation amount data backup monitoring for the failure day is also possible.
- Since the operation amount data is the integrated value, the data for the back-up day must also be monitored.

5) Wait until the day after the settlement-of-accounts day.

Continue normal operation up to the day after the settlement-of-accounts day.

Note:
- The system operates normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

6) Start remedial apportioning.

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described with the time series example below.

Note
- Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

7) Settlement-of-accounts term setting
   Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting screen. The initial value is the settlement-of-accounts term of the previous month.

8) Total air-conditioning charge setting
   Set the total air-conditioning charge for the settlement-of-accounts term.

Remedial apportioning setting window

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> - When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

9) Include/Not include standard charge setting
   When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

10) Remedial interval setting
   Set the remedial apportioning interval. The remedial start day is the backup day and the remedial end day is the recovery day.

> Note:
> - "Recovery day" is the day the system was recovered from a HDD failure and is the day normal operation was restarted.
> - When charge is not apportioned normally for the day before the remedial apportioning start day, change the remedial apportioning start day to the day after the day normally charged before the backup day.

11) Watt hour meter integrated value setting
   The value at 24:00 hours of the day before backup is displayed at the watt hour meter integrated value of each watt hour meter. The watt hour meter integrated value does not have to be corrected.

> Note:
> - When a value is not displayed in the watt hour meter integrated value field, there is no data in the database. Since a setting error is possible, check the remedial apportioning start day.
> - Normal charge apportioning is necessary for the day before backup.

When setting of the remedial apportioning screen is complete, perform Section 9.5.1 "(3) Calculate remedial apportioning".

9.5.4 Apportioning method when computer crashes
The following describes the apportioning method when the computer crashes and the charging data is abnormal and apportioning (un-apportioned) cannot be performed.

> Note:
> - Whether or not un-apportioning of charging data was generated by a computer crash can be checked at the "Charging data maintenance" screen.
> - When the charging data is not apportioned, this remedial apportioning is unnecessary.

This is described with the time serial example below.

143
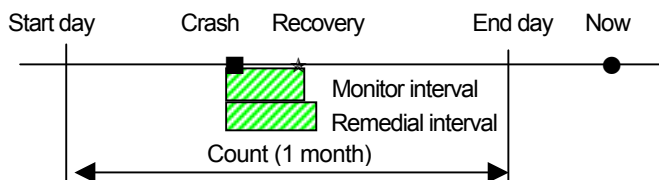
1) Computer down time check

Check the time the computer was shut down at the "Charging data maintenance" screen. When nothing exists in the charging data, the numbers are displayed in gray.

2) Operation amount backup monitoring

Monitor backup of the operation amount from the day the computer crashed to the day it was recovered. Set the start day as the computer crash day and the end day as the day before recovery day.

Note:
- Operation amount backup monitoring can be performed for the recovery day also.

3) Start remedial apportioning.

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window.

Note:
- Begin remedial apportioning from the day after the settlement-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting screen. The initial value is the settlement-of-accounts term of the previous month.

5) Total air-conditioning charge setting

Set the settlement-of-accounts term total air-conditioning charge.

Remedial apportioning setting screen

Note:
- When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including that standard charge.
- When there is one power charge, the total air-conditioning charge does not have to be set. This item cannot be set.

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the apportioning interval. The apportioning start day is the computer crash day and the apportioning end day is the recovery day.

Note:
- When the charge for the day before the apportioning start day is not apportioned normally, change the apportioning start day to the day after the first day charged normally before the computer crashed.

8) Watt hour meter integrated value setting

The value at 24:00 hours of the day before the computer crashed is displayed in the watt hour meter integrated value of each watt hour meter. The watt hour meter integrated value does not have to be corrected.

Note:
- When a value is not displayed in the watt hour meter integrated value field, there is no data in the database. Since there may be a setting error, check the remedial start day.
- The charge for the day before the computer crashed must be apportioned normally.

When setting of the remedial apportioning screen is complete, perform Section 9.5.1 "(3) Calculate remedial apportioning".

9.5.5 Remedy when watt hour meter fails (monitoring impossible)

The following describes the remedy when a watt hour meter fails and the charging data is abnormal and is not apportioned.

1) Recovery from watt hour meter failure

Locate and remove the cause of the watt hour meter failure. The cause of the failure may be an open transmission line, CT failure, or failure of the watt hour meter itself.

2) Wait until the day after the settlement-of-accounts day.

After recovery, continue normal operation until the day after the settle-of-accounts day.

> Note:
> • Operate normally up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

3) Start remedial apportioning.

Start remedial apportioning by clicking the "Remedial apportioning" icon in the initial window. This is described by the time series example below.

> Note:
> • Perform remedial proportioning from the day after the settle-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting screen. The initial value is the settlement-of-accounts term of the previous month.

5) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement-of-accounts term.

> Note:
> • When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including this standard charge.
> • When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting screen

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the failure generation day and the remedial end day is the recovery day.

> Note:
> • "Recovery day" is the day watt hour meter monitoring was recovered and is the day that normal operation was started.
> • When the day before the remedial start day was not charge apportioned normally, change the remedial start day to the day after the day normally charged before the failure day.

8) Watt hour meter integrated value setting

The value at 24:00 of the day before the failure day (value for 00:00 of the failure day) is displayed at the watt hour meter integrated value of each watt hour meter.

Failure cause: watt hour meter transmission line open (When watt hour meter counts normally.)
 The watt hour meter integrated value does not have to be corrected.

Failure cause: watt hour meter failure or CT failure (When watt hour meter does not count normally)
 Only the watt hour meter integrated value of the failed watt hour meter must be corrected. Refer to the watt hour meter integrated value for the week before the failure and study the electric power consumption for the remedial interval.
 Examples 1 and 2 study the power consumption for the three days from the failure day (00:00) to the day after recovery (00:00) and calculate the power integrated value for 00:00 of the failure day (24:00 of the day before the failure day), with the integrated value for the day after recovery as the standard.
 The power integrated value is corrected to the calculated value for 00:00 of the failure day.

Ex. 1) Remedial interval power consumption study (Remedial interval = 3 days)

(00:00 value) Units: kWh

	7 days before	6 days before	5 days before	4 days before	3 days before	2 days before	1 day before	Failure day	…	Day after recovery
Integrated value	200	300	410	500	620	780	800	900	…	950
Consumption		100	110	90	120	160	20	100	300	

* The average day's power consumption and remedial interval power consumption are assumed to be 100kWh and 300kWh, respectively.
 The power integrated value is set at "950-300=650" kWh.

Ex. 2) Remedial interval power consumption study (Remedial interval = 3 days)

(00:00 value) Units: kWh

	7 days before	6 days before	5 days before	4 days before	3 days before	2 days before	1 day before	Failure day	…	Day after recovery
Integrated value	200	300	410	500	620	780	800	900	…	5
Consumption		100	110	90	120	160	20	100	300	

* The average day's power consumption and remedial interval power consumption are assumed to be 100kWh and 300kWh, respectively.
 The power count value is set at "5-300+9999+1=9705" kWh.
 (Watt hour meter maximum integrated value: 9999 Minimum integrated value: 1)

Note:
 • The watt hour meter integrated value for each date can be displayed by integrated value by changing the remedial apportioning start day.
 • The day before the failure day must be charge apportioned normally.
 • The indoor unit operation amount can also be referenced in watt hour meter integrated value calculation and study. The average value can also be studied from the monthly units watt hour meter air-conditioning charge result. It is recommended that the calculation method suited to the system conditions be used.
 • When the calculated watt hour meter integrated value is a negative value, set the value calculated integrated value + watt hour meter maximum integrated value + minimum integrated value.

When setting of the remedial apportioning screen is complete, perform Section 9.5.1 "(3) Calculate remedial apportioning".

9.5.6 Remedy for system information setting error

The following describes the remedy when a system information (system configuration, charging system, etc.) setting error was found.

> Note:
> - It may not be possible to remedy a setting error even by remedial apportioning depending on the type of system setting error.
> - This remedial apportioning cannot be used for system configuration and other changes.

1) System setting error recovery

Find and correct the system setting error. Setting errors include group setting, block setting, watt hour meter and unit correspondence setting, etc.

> Maintenance tip
> - Before system setting error recovery, perform interval settlement-of-accounts up to the day before the setting error and output the result.
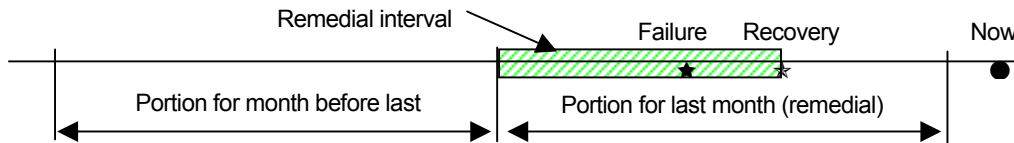
2) Continue operation until the day after the settlement-of-accounts day.

Continue normal operation up to the day after the settlement-of-accounts day.

> Note:
> - Normal operation is continued up to the day after the settlement-of-accounts day because remedial apportioning is performed for one month.

3) Start remedial apportioning.

Start remedial apportioning by clicking the [Remedial apportioning] button in the initial window. This is described by the time series example below.

> Note:
> - Begin remedial apportioning from the day after the settlement-of-accounts day. However, except when it is different from the normal settlement-of-accounts term. Remedial apportioning can begin two days after the recovery day. (Only when the day after the recovery day was normally charged.)

4) Settlement-of-accounts term setting

Set the settlement-of-accounts term (start day and end day) at the remedial apportioning setting screen. The initial value is the settlement-of-accounts term of the last month.

5) Total air-conditioning charge setting

Set the total air-conditioning charge for the settlement- of-accounts term.

> Note:
> - When the settlement-of-accounts term is one month and includes a standard charge, set the total air-conditioning charge including that standard charge.
> - When there is one power charge, the total air-conditioning charge does not have to be set. This item appears in gray.

Remedial apportioning setting screen

6) Include/Not include standard charge setting

When the settlement-of-accounts term is one month, [Include] or [Not include] standard charge can be selected. Set whether or not the standard charge is to be included.

7) Remedial interval setting

Set the remedial apportioning interval. The remedial start day is the settlement-of-accounts day and the remedial end day is the system setting error recovery day.

> Note:
> - "Recovery day" is the day the system recovered from a system setting error and normal operation started.

8) Watt hour meter integrated value setting

The value at 24:00 hours of the day before the count start day is displayed in the watt hour meter integrated value of each watt hour meter.
Setting error: When watt hour meter and unit wiring connection match
　The watt hour meter integrated value does not have to be corrected.

Failure cause: When watt hour meter and unit wiring connection are wrong
Refer to the indoor unit operation amount and calculate and study the remedial interval power consumption for each watt hour meter. Only the watt hour meters where the watt hour meter and unit wiring connection is wrong have to be studied.

> Note:
> - The watt hour meter integrated value for each date can be displayed by changing the remedial apportioning start day.
> - The day before the failure day must be charge apportioned normally.
> - The indoor unit operation amount can also be referenced in watt hour meter integrated value calculation and study. It is recommended that the calculation method suited to the system conditions be used.
> - When the calculated watt hour meter integrated value is a negative value, set the value calculated integrated value + watt hour meter maximum integrated value + minimum integrated value. (Refer to the example in Section 9.5.6.)

When setting of the remedial apportioning screen is complete, perform Section 9.5.1 "(3) Calculate remedial apportioning".

9.6　Remedial Apportioning of Charges

Remedial apportioning of charges
If the charging data should be damaged (regardless of whether there is a backup) because of an HDD fault, this remedial function can be used to calculate the air-conditioning charges by remedially calculating the charges apportioned before the computer was recovered.

9.6.1 Preparing for remedial apportionment of charges

Remedial apportioning apportions the charges within the remedial period for each day, and calculates the air-conditioning charges together with the normal apportionment data.

The following preparations must be made and functions must be executed to enable remedial apportioning.

- Settlement period
- Remedial interval
- Monitor of operation amount data
- Monitor of electric amount data
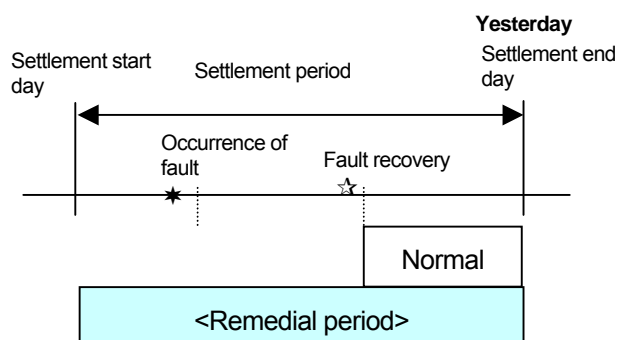
Remedial apportioning is executed in the following order.

Step 1: Recover the computer, and confirm that the TG-2000A initialization has been completed.
Step 2: Monitor the operation amount data ... Refer to section 9.3
Step 3: Monitor the electric amount data …... Refer to section 9.3
Step 4: Execute remedial apportioning

When computer's HDD fails, and there is no backup

> **Note:**
> - This remedial apportioning calculates the air-conditioning charges as a remedial measure. If there are any amounts carried over from the previous month, they are excluded from the remedial calculation.
> - If the settlement period is for one month, the air-conditioning charges including the basic charges can be calculated.
> - The operation amount and electric amount must be monitored before remedial apportionment.
>
> **Caution:**
> - Always monitor the operation amount and power amount data for ~~the fault occurrence period and the days before and after that period~~.

9.6.2 Remedial Apportionment Set-up window (PLC, PI controller)

If the charging data is damaged (regardless of whether there is a backup) due to an HDD fault, the air-conditioning charges can be remedially calculated using this function.

(1) Set each remedial apportionment item.

[Procedure]

1) Select the [Remedial Apportioning] button.
   From the initial window, click the [Remedial Apportioning] button. The Remedial Apportioning Set-up window opens.
2) Set the settlement period
   Use clicking and the "▲/▼" buttons to set the dates of the interval to be calculated with this remedial apportioning. A period from the previous day to the past 122 days can be set.
3) Select the basic charges
   If the settlement interval is one month, application of the basic charges can be selected. Select the [Include Basic Charges] or [Exclude Basic Charges] option button.
4) Set the apportioning period
   Use clicking and the "▲/▼" buttons to set the remedial period dates.
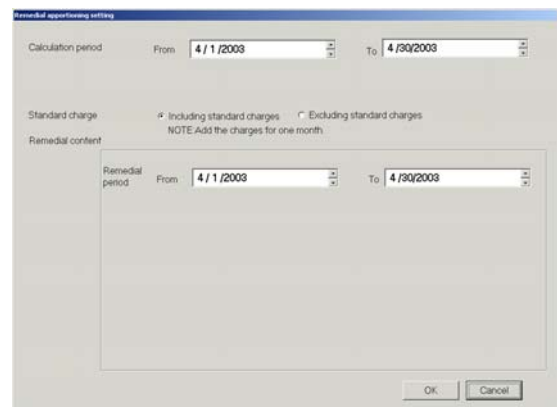
Remedial Apportioning Set-up screen

> **Note:**
> - **If HDD is out of order, remedial apportioning should be carried out by the day before.**
> - The default settlement period is the previous month.
> - [Include Basic Charges] can be selected only when the settlement period is one month.
> - If the recovery date exceeds the settlement day, remedial apportioning should be carried out for both the current month and next month.
> - Application of the basic charges cannot be selected when using the power apportionment billing (manual electric amount input) without WHM connected.

(2) Calculate remedial apportioning.

[Procedure]

1) Click [OK] button.
   Click the [OK] button after setting the required items on the Remedial Apportioning Set-up window. The Remedial Apportioning Confirmation screen opens.
2) Select the [OK] button after confirming the displayed details.
   The Calculating window opens.
   * The apportioning calculation stops when the [Cancel] button is clicked.
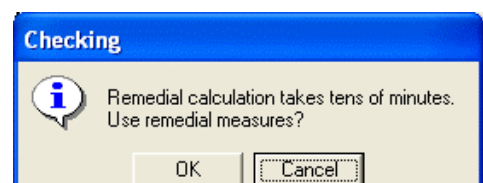
Remedial apportioning confirmation screen

Note:
- If the [OK] button is selected on the Remedial Apportioning Set-up window, the system will check for errors in the settings. A warning window opens if any error is found.
- The remedial apportioning calculation can be canceled by clicking the [Cancel] button in the Calculating window.
- The remedial calculation takes several ten minutes.
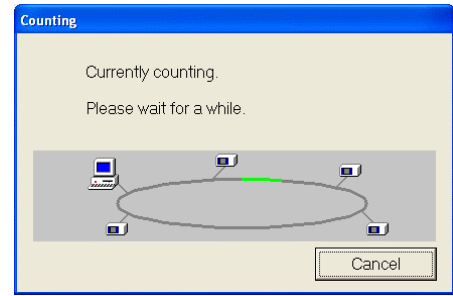
Calculating

The following type of setting error warning message appears if an error is found in the remedial apportioning settings.
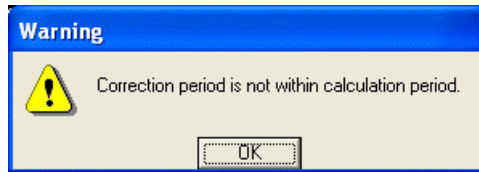
Alarm display 1

Alarm display 2

(3) Display the remedial apportioning calculation results
Remedial Apportioning Results window opens when the remedial apportioning calculation completes.

Output button
The remedial results can be output to a file.

Settlement rewrite button
The remedial apportioning results can be rewritten to the settlement data.

Remedial conditions display

Remedial air-conditioning charges

Back button

End button

Remedial Apportioning Results screen

[Description of displays and buttons]

Item	Details
Remedial conditions display	Displays the settled and remedially apportioned conditions.
Remedial air-conditioning charges	Displays the remedied air-conditioning charge calculation results in block and watt hour meter units. The remedial apportioning period reference value is displayed for the block unit.
Output button	The remedial apportioning air-conditioning charge results can be output to a printer or file.
Settlement rewrite button	If the remedial apportioning air-conditioning charge results are the same as the calculated results (including basic charges), it can be written over the air-conditioning charge results in one month units.
Back button	Returns to the Remedial Apportioning Conditions Set-up window.
End button	Closes this Remedial Apportioning window.

9.7 Maintenance of Charge Comparison Data When AG-150A/G-50A and WHM/Measurement Meter Fail or Are Replaced

If the operation amount or watt hour meter/meter start counting from 0 due to a fault in the AG-150A/G-50A or WHM/Measurement meter, the charge comparison data used for power apportionment charge can be cleared to 0.

Clearing the charge comparison data

[Procedure]

1) Select the [Charge Comparison Data Maintenance] button.
   From the initial window, click the [Charge Comparison Data Maintenance] button in the Maintenance group.
   The Charge Comparison Data Maintenance window opens.
2) Select the target unit
   Select the unit to be cleared.
   Target: " WHM/Measurement meter ", "AG-150A/G-50A"
   Target unit: AG-150A/G-50A, meter (with target selection box)
3) Select the [Batch Reset] button
   Click the [Batch Reset] button to clear the charge comparison data used for charge apportioning calculation.
   The charge comparison data for the selected target will be cleared to zero.
4) Select the [OK] button when completed.
   The initial window will open.

Maintenance Tip:
- Note that if a target, which has not been replaced due to a fault, is cleared with this function, the charge apportionment may not be calculated correctly.

Note:
- While replacing, the maintenance must be performed according to the charge data in section 9.2.3 or 9.2.4.

Target selection

Batch reset button

Maintenance of comparison data for energy mo...

○ Select from meter
◉ Select from AG-150A/G-50A

AG-150A/G-50A 01

All reset

☐ Deletes carryover

OK
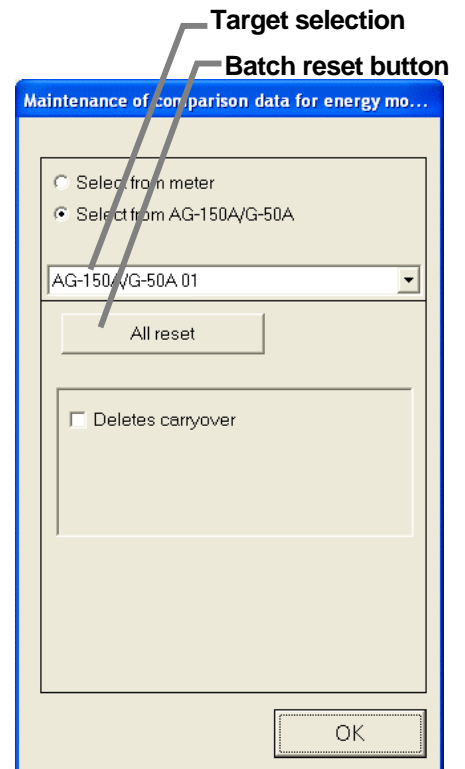
9.8 **Maintaining the charge data by deleting the carry over amount for the unused unit prices**

If one or more unit prices between Unit Price 1 through 5 are unused, the carryover amount for those items may cause incorrect trend data to be output. (There are no problems with the apportioned charge calculations.)

Clearing the carryover amount for the unused unit prices will enable the output of correct trend data.

Clearing the carryover amount

[Procedure]

1) Select the [Charge Comparison Data Maintenance] button.
   From the initial window, click the [Charge Comparison Data Maintenance] button in the Maintenance group.
   The Charge Comparison Data Maintenance window opens.

2) Select the target unit
   Select the unit to be cleared.
   Target: " WHM/Measurement meter ", "AG-150A/G-50A"
   Target unit: AG-150A/G-50A, meter (with target selection box)

3) Check the [Delets carryover]
   Check the check box next to [Deletes carryover] to display [Selects appropriate unit price].

4) Select the unit price that was not used.
   Select the unit price that was not used under [Selects appropriate unit price], and click the [Delete] button.
   The carried over amount that corresponds to the unit price will be cleared.

5) Select the [OK] button when completed.
   The initial window will open.

Note
・If the charge data for the previous day has not been acquired, the carryover amount cannot be cleared.
  Try again after collecting the charge data.

Target selection

Maintenance of comparison data for energy mo...

○ Select from meter
● Select from AG-150A/G-50A

AG-150A/G-50A 01

All reset

□ Deletes carryover

Check

OK

☑ Deletes carryover

Selects appropriate unit price.

Unit price1   Delete

152
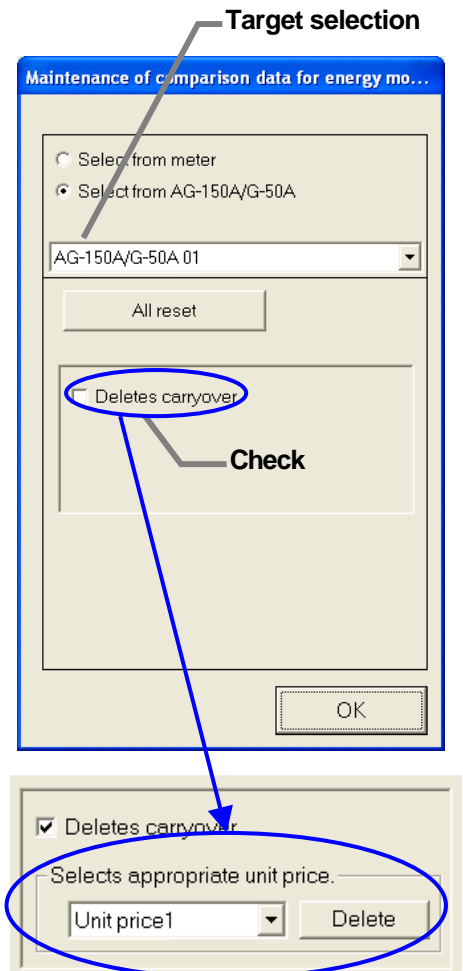
10. Error Code List

(1) Air-conditioning unit error codes

The following is a list of the error codes and their meaning. (A) indicates A control unit.

0100 "Blanket unit error"
01*0 "Equipment abnormality *"
0403 "Serial transmission trouble"
0404 Indoor unit EEPROM error (A)
0701 Combustion circuit abnormality (A)
0702 Combustion heat exchange overheating protection (A)
0703 Accidental fire (A)
0704 Heater abnormality (A)
0705 Seismoscope malfunction (A)
0706 Flame current sensor abnormality (A)
0707 Ignition abnormality (A)
0708 Blower motor rotation abnormality (A)
0709 Oil pump circuit abnormality (A)
0900 "Test run"
1000 "Ref.cycle abnormality"
10*0 "Ref.cycle abnormality in line *"
1102 Discharge temperature abnormality (TH4) (A)
1108 Inner thermo (49C) operation (A)
11** "Ref.cycle temperature abnormality - Common operand: **"
12** "Ref.cycle temperature abnormality allowance - Common operand: **"
1300 Low-pressure pressure abnormality (63L operation) (A)
13** "Ref.cycle pressure abnormality - Common operand: **"
14** "Ref.cycle pressure abnormality allowance - Common operand: **"
1500 "Ref.cycle not operate due to overcharge"
1501 "Ref.cycle not operate due to undercharge" (/compressor shell temperature abnormality)
1502 "Ref.cycle not operate due to liquid back" /Low-discharge super heat abnormality (A)
1503 "Ref.cycle not operate due to coil frost"
1504 "Ref.cycle not operate due to overheat protection"
1505 "Ref.cycle not operate due to compressor vacuum operation protection/refrigerant low temperature abnormality"
1506 "Ref.cycle not operate due to refrigerant pump abnormality"
1507 "Ref.cycle not operate due to composition detection abnormality"
1508 "Ref.cycle not operate due to control valve fault"
1509 "Ref.cycle not operate due to high pressure abnormality (ball valve closed) "
1510 "Ref.cycle - Gas leakage"
1511 "Ref.cycle not operate due to oil slick abnormality"
1512 "Ref.cycle not operate due to a stop of freezing protection function"
1513 "Ref.cycle - Brine freezing"
1559 "Oil balance circuit abnormality"
1600 "Ref.cycle - Preliminary overcharge refrigerant trouble"
1601 "Ref.cycle - Preliminary lacked refrigerant trouble"
1605 "Ref.cycle - Preliminary suction operation protection"
1606 "Ref.cycle - Preliminary gas pump abnormality"
1607 "Ref.cycle - Preliminary CS circuit closed detection abnormality"
1608 "Ref.cycle - Preliminary control valve abnormality"
1659 "Ref.cycle - Preliminary oil balance circuit abnormality"
2000 "Water system abnormality" (Pump interlock abnormality)
20*0 "Water system abnormality in line *"
21** "Water system temperature abnormality - Common operand: **"
22** "Water system temperature abnormality allowance - Common operand : **"
23** "Water system pressure abnormality - Common operand: **"
24** "Water system pressure abnormality allowance - Common operand: **"
2500 "Water system not operate due to water leak"
2501 "Water system not operate due to water supply suspension"
2502 "Water system not operate due to drain pump abnormality"
2503 "Water system not operate due to drain sensor abnormality/float switch function"

2504 "Water system not operate due to liquid level abnormality"
2505 "Water system not operate due to cool water valve abnormality"
2506 "Water system not operate due to warm water valve abnormality"
2507 "Water system not operate due to dew condensation prevention control activated"
2600 "Water system operation restricted due to water leak"
2601 "Water system operation restricted due to water supply suspension/humidifier water supply suspension"
2602 "Water system operation restricted due to drain pump abnormality"
2603 "Water system operation restricted due to drain sensor abnormality"
2604 "Water system operation restricted due to liquid level abnormality"
3152 "Air system operation restricted due to inverter control box inner temperature abnormality"
3182 "Air system operation restricted due to housing inner temperature abnormality"
3252 "Air system operation restricted due to preliminary control box temperature abnormality"
3600 "Air system operation restricted due to filter clogging"
3601 "Air system operation restricted due to filter maintenance"
3602 "Air system operation restricted due to damper position detecting abnormality"
37** "Air system operation humidity abnormality allowance - Common operand: **"
38** "Air system operation humidity abnormality - Common operand: **"
4000 "Electric system abnormality"
40*0 "Electric system abnormality in line *"
4100 "Electric system not operate due to overcurrent shut-off"
4101 "Electric system not operate due to overcurrent protection"
4102 "Electric system not operate due to open phase" /Open phase (T phase) (A)
4103 "Electric system not operate due to reversed phase/open phase"
4104 "Electric system not operate due to electric leak"
4105 "Electric system not operate due to short circuit"
4106 "Electric system not operate due to self power supply OFF/power failure"
4107 "Electric system not operate due to overlord"
4108 "Electric system not operate due to overlord protection/OCR51C" /Open phase (S phase),51CM connector open (A)
4109 "Electric system not operate due to OCR51F"
4110 "Electric system not operate due to high voltage part"
4111 "Electric system not operate due to bus current"
4112 "Electric system not operate due to coil overheat 49°C"
4113 "Electric system not operate due to heater overheat"
4114 "Electric system not operate due to fan controller abnormality"
4115 "Electric system not operate due to power supply synchronism abnormality" /Input circuit (board) failure
4116 "Electric system not operate due to motor abnormality/speed abnormality"
4117 Compressor self-protection function operation (A)
4118 Opposite phase detection circuit (board) failure (A)
4119 Open of 2 or more connectors (A)
4121 "Electric system not operate due to trouble in equipment to which a measure against higher harmonics is taken"
4123 "Electric system not operate due to Inverter output error"
4124 "Electric system not operate due to damper abnormality"
4125 "Electric system - Rush-proof circuit abnormality"
4158 "Electric system - Preliminary overcurrent protection/OCR51C"
4162 "Electric system not operate due to compressor coil temperature abnormality delay"
4163 "Electric system not operate due to preliminary fan controller abnormality"
4165 "Electric system not operate due to preliminary power synchronization error"
4171 "Electric system - Preliminary trouble in equipment to which a measure against higher harmonics is taken"
4200 "Inverter abnormality"
420* "Inverter abnormality - Inverter No.: *"
4210 "Inverter overcurrent shut-off"
421* "Inverter overcurrent shut-off - Inverter No.: *"
4220 "Inverter bus voltage insufficiency" / Voltage abnormality (A)
422* "Inverter bus voltage insufficiency - Inverter No.: *"
4230 "Inverter radiating thermostat abnormality"
423* "Inverter radiating thermostat abnormality - Inverter No.: *"
4240 "Inverter overcurrent (overload) protection"
424* "Inverter overcurrent protection - Inverter No.: *"

4250 "Inverter IPM/bus voltage abnormality" /Power module abnormality (A)
425* "Inverter IPM abnormality *"
4260 "Inverter cooling fan trouble"
426* "Inverter cooling fan trouble - Inverter No.: *"
4300 "Inverter abnormality allowance"
430* "Inverter abnormality allowance - Inverter No.: *"
4310 "Inverter overcurrent shut-off allowance"
431* "Inverter overcurrent shut-off allowance - Inverter No.: *"
4320 "Inverter bus voltage insufficiency allowance"
432* "Inverter bus voltage insufficiency - Inverter No.: *"
4330 "Inverter radiating thermostat abnormality allowance"
433* "Inverter radiating thermostat abnormality allowance - Inverter No.: *"
4340 "Inverter overcurrent protection abnormality"
434* "Inverter overcurrent protection abnormality - Inverter No.: *"
4350 "Inverter IPM abnormality allowance"
435* "Inverter IPM abnormality allowance *"
4360 "Inverter preliminary cooling fan trouble"
436* "Inverter preliminary cooling fan trouble - Inverter No.: *"
5000 "Sensor trouble"
50*0 "Sensor trouble in system *"
51** "Temperature sensor trouble - Sensor No.: **"
5202 Connector (63L) open (A)
52** "Pressure sensor trouble - Sensor No.: **"
5300 Current sensor abnormality (A)
53** "Current sensor trouble - Sensor No.: **"
54** "Humidity sensor trouble - Sensor No.: **"
55** "Gas sensor trouble - Sensor No.: **"
56** "Air speed sensor trouble - Sensor No.: **"
57** "Limit switch trouble - Switch No.: **"
58** "Sensor trouble - Sensor No.: **"
59** "Other sensors trouble - Sensor No.: **"
6000 "System abnormality"
6101 "System not operate due to abnormality - With response frame"
6102 "No answer back"
6200 "Controller H/W abnormality"
6201 "E2PROM abnormality"
6202 "RTC abnormality"
6500 "Communication error"
6600 "Communication error - Address duplicate"
6601 "Communication error - Polarity unsettled"
6602 "Communication error - Transmission processor hardware error"
6603 "Communication error - Transmission line busy"
6604 "Communication error - No ACK (06H) (communication circuit error)"
6605 "Communication error - No response frame"
6606 "Communication error - Transmission processor communication error"
6607 "Communication error - No ACK return"
6608 "Communication error - No return of response frame"
6609 "Communication error"
6610 "Communication error"
6700 "Communication error - K-transmission abnormality"
6701 "Communication error - K-transmission error"
6702 "Communication error - K-address duplicate"
6750 "Communication error - K abnormality code PO"
6751 "K abnormality - Room temperature thermistor abnormality"
6752 "K abnormality - Indoor coil thermistor abnormality, Condensation temperature sensor abnormality"
6753 "K abnormality - Transmit/receive error"
6754 "K abnormality - Drain sensor abnormality, Float switch function"
6755 "K abnormality - Drain pump abnormality"
6756 "K abnormality - Coil frost/overheat protection"
6757 "K abnormality - System error"
6758 "K abnormality - Outdoor unit trouble, Indoor/outdoor communication error"
6761 "K abnormality - Room temperature thermistor abnormality"

6762 "K abnormality - Indoor coil thermistor abnormality, Condensation temperature sensor abnormality"
6763 "K abnormality - Transmit/receive error"
6764 "K abnormality - Drain sensor abnormality"
6765 "K abnormality - Drain pump abnormality"
6766 "K abnormality - Coil frost/overheat protection"
6767 "K abnormality - Outdoor unit trouble - Indoor/outdoor communication error"
6771 "K abnormality - High pressure abnormality, Low pressure abnormality"
6772 "K abnormality - Inner thermostat function, Discharge temperature abnormality, Shell thermostat function, Overcurrent protection"
6773 "K abnormality - Radiator plate thermostat function"
6774 "K abnormality - Outdoor thermistor abnormality"
6775 "K abnormality - Pressure sensor abnormality, Indoor/outdoor communication error"
6776 "K abnormality - Overcurrent shut-off"
6777 "K abnormality - System error"
6778 "K abnormality - Normal"
6779 "K abnormality - Refrigerant overcharge, Abnormal voltage, Abnormal CT sensor"
6800 "Communication error - Other communication errors"
6801 "Communication error - V-control communication error"
6810 "Communication error - UR communication error"
6811 "Communication error - UR communication synchronism not recover"
6812 "Communication error - UR communication hardware error"
6813 "Communication error - UR communication status bit detection error"
6820 "Other communication errors"
6821 "Other communication errors - Transmission line busy"
6822 "Other communication errors - No communication ACK"
6823 "Other communication errors - No response command"
6824 "Other communication errors - Receive data error"
6830 "Communication error - MA communication refrigerant address double setting error"
6831 "Communication error - No MA communication reception error"
6832 "Communication error - MA communication synchronism not recover"
6833 "Communication error - MA communication transmission/reception hardware trouble"
6834 "Communication error - MA communication start bit detection error"
6840 "Communication error - A control no indoor/outdoor communication/reception abnormality"
6841 "Communication error - A control indoor/outdoor communication synchronization recovery abnormal"
6844 "A control indoor/outdoor communication incorrect indoor/outdoor wiring connection, excessive number of indoor units (more than five units)"
6845 "Communication error - A control indoor/outdoor communication incorrect indoor/outdoor wiring connection (telecommunication, disconnection)"
6846 "Communication error - A control indoor/outdoor communication startup time exceeded"
7000 "System abnormality"
7100 "System abnormality - Total capacity error"
7101 "System abnormality - Capacity code error"
7102 "System abnormality - Connecting unit number excess"
7103 "System abnormality - Piping length setting error"
7104 "System abnormality - Floor height setting error"
7105 "System abnormality - Address setting over 254"
7106 "System abnormality - Attribute setting error"
7107 "System abnormality - Distributor setting error"
7108 "System abnormality - Ref. system setting error"
7109 "System abnormality - Connection setting error"
7110 "System abnormality - Ref. system connection/connection data unsettled"
7111 "System abnormality - I/O connection equipment not connected/remote controller sensor abnormality"
7112 "System abnormality - I/O type setting error"
7113 "System abnormality - Equipment unsettled"
7116 "System abnormality - Replace non-wash setting error"
7117 "System abnormality - Model identification setting error"
7130 "System abnormality - Different unit model error"
7131 "System abnormality - Mixed cooling only H/P connection error (Facility PAC)"
7132 "System abnormality - Multiple entries of operation performance (Facility PAC)"

7200 "System abnormality - Numeric values unsettled"
7201 "System abnormality - Numeric values unsettled"
73** "System abnormality - LON system equipment abnormality"

Note:
- The error codes list all the codes. Error codes that are not displayed with some TG-2000A systems are also listed.

(2)   System error codes

The following is a list of the error codes and their meaning.

AG-150A/G-50A error
0003 "Communication error"
0008 "Communication error (PLC - AG-150/G-50A) "
0009 "Operation amount calculation error"

PLC error
0003 "Communication error"
0004 "Power Failure detection"
0005 "Battery drop warning"
0006 "PLC diagnosis error"
0007 "PLC stop"

General equipment error (For both PLC and IC I/O signal)
0091 "General equipment error 1"

IC I/O signal error
0090 "IC I/O signal error"

WHM malfunction prediction
0095   "Electric amount calculation malfunction prediction error"
(Malfunction prediction (When amount 0 of the electric power continues on 3 days))

Note:
- The error codes for the man-machine (integrated software TG-2000A), AG-150A/G-50A, PLC and general error codes are also displayed with up to four digits. However, the meanings differ from the air conditioner error codes.

11.1 Setting Check List

Follow a setting item check list according to each function you want to use.

	Detail of function
Case 1	Manage groups by address
Case 2	Manage groups and blocks by name (shown by floor plan)
Case 3	Case 2 + Manage scheduling
Case 4	Case 3 + Manage air conditioner charging
Case 5	Case 4 + Manage general equipments

Check the following items for the above cases.

Setting item		Case 1	Case 2	Case 3	Case 4	Case 5
User settings		V	V	V	V	
Site name settings		V	V	V	V	
G-50A connection setting	Set number of G-50A	V	V	V	V	V
	Set G-50A IP address	V	V	V	V	V
System configuration settings	Configure unit	V	V	V	V	V
	Set cooling system	V	V	V	V	V
	Set the Indoor unit groups	V	V	V	V	V
	Set indoor units and ventilation functions	V	V	V	V	V
Monitoring setting	Setup of unit model name	V	V	V	V	V
	Set the number of floors and floor name *1	V	V	V	V	V
	Create floor planes *1	V	V	V	V	V
	Set the floors and G-50A units	V	V	V	V	V
	Position and name group icons	V	V	V	V	V
	Set blocks	V	V	V	V	V
Time settings		V	V	V	V	
Password change		V	V	V	V	
Option	Setting schedule (Year/week)			V	V	V
	Setting watt hour meter				V	V
	Setting charge system				V	V
	Setting charges				V	V
	Check initial settings for charge system setting				V	V
	Setting PLC for general equipment					V
	Setting Energy saving/Peak cut *2					
	Setting Auto change over					
	Setting DIDO, AI, PI controller					

*1: Includes the sub-screen.
*2: Refer to section 11.4.

Note:
- The license No. must be registered in the AG-150A/G-50A to use the optional annual/week schedule and power apportioning billing system.
- Carry this out when the password needs to be changed.
- Before performing a test run, check that the clocks on the AG-150A/G-50A, PLC for measurement meter, and PLC for General Equipment are set correctly.

11.2 Test Run Check

> Note:
> * Before carrying out a test run check, complete the test run checks of the systems under the control of the central controller AG-150A/G-50A.
> * Refer to section 4 for details on site adjustment.

Test run check sheet

Once the initial settings have been carried out as prescribed by the section on field adjustment in this manual, follow the order of testing prescribed by the test run check sheet and check the following items: (1) to (4).

(1) Check operation start-up.
 * Once the necessary information has been entered in the initial screen, advance to the control screen.
 * Check that the screen which indicates operation start-up is in progress appears.
 * The time depends on the number of air conditioners that are connected. The operation start-up should take between 10 to 20 minutes to complete.
 * Check the display of each floor to make sure there is no error mark.
 * If an error occurs, check the error history on the history screen.

(2) Man-machine on-off (on-off from the integrated centralized control software TG-2000A)
 * Operate an air conditioner unit from the man-machine.
 * Confirm the displays of the local remote controller, central controller AG-150A/G-50A, system controller and man-machine indicate the air conditioner is operating.
 * Carry out air conditioner operation in order of group, block, floor and entire building.
 * If operation from the man-machine operated the wrong air conditioner, check the following settings.
   →Position and name of group icon setting (Refer to section 8.11.9)
   →Indoor unit and ventilation group setting (Refer to section 8.7.5)
   →Block setting (Refer to section 8.11.10)

(3) Local remote controller on-off
 * This step is only required when a local remote controller is connected.
 * Operate the air conditioner unit from the local remote controller.
 * Confirm the central controller AG-150A/G-50A and man-machine indicates that the air conditioner unit is operating.
 * On the man-machine display, check the floor screen, block screen and entire building screen are correct.

(4) Central controller AG-150A/G-50A on-off
 * Operate the air conditioner unit from the central controller AG-150A/G-50A.
 * Confirm the local remote controller and man-machine indicates that the air conditioner unit is operating.
 * On the man-machine display, check the floor screen, block screen and entire building screen are correct.

To make the check sheets easy to read, allocate 1 check sheet page for each installation floor unit or central controller AG-150A/G-50A unit.
Record the values of each PLC for general equipment when managing general equipments.

Test run check sheet

Name of managed equipment						Test operation procedure and check results						
Floor	AG-150A /G-50A IP address	Unit address	Unit model	Group address	Group name	Block name	Start-up check error display	M/M on-off group units			M/M on-off block units		
								LRC display	AG-150A /G-50A display	AC status	LRC display	AG-150A /G-50A display	AC status

M/M: Man-machine   AG-150A/G-50A: Central controller   LRC: Local remote controller   AC: Air conditioner unit

Date			Tester	

Test operation procedure and check results													
M/M on-off Floor units			M/M on-off Entire building			Local remote controller on-off				Central controller G-50A on/off			
LRC display	AG-150A /G-50A display	AC status	LRC display	AG-150A /G-50A display	AC status	M-M display			AG-150A /G-50A display	M-M display			LRC display
						Floor	Block	Entire building		Floor	Block	Entire building	

11.3 Charging Test Run Check

> Note:
> - The charging test run check takes at least 3 days.
>   (Check the contents for the first day before 4:00. If the air conditioner has been stopped during the period from 0:00 to 4:00, it is possible to conduct the checking in two days.)
> - Leave enough time for the transfer when carrying out the charging test operation.
> - Carry out this check when system is modified while the system is up and running.

Flow of charging test run

	Test item	Comment
Day 1	(1) Check the charge setting details on the man-machine	* After checking the setting, allow TG-2000A to operate as it was.
Day 2	(2) Check the meter values of the watt hour meter (No. 1) (3) Let the air conditioners run (4) Check the meter values of the watt hour meter (No. 2)	* Items (2) and (4) are performed for charge calculation with WHM connected.
Day 3	(5) Check the results of charging division (6) Check the settlement results (7) Decision check (8) Change to actual operation setting	* When the check result is OK, item (8) is performed.

Man-machine: Computer for integrated centralized control software TG-2000A

11.3.1 Charging (No WHM connection) Test Run Check

Charging test run check sheet (Charging (No WHM connection))
 Perform the charging test run check after the test run check is complete.
 Follow the order of testing prescribed by the charging test run check sheet and check the following items: (1) to (7).

> Maintenance Tip:
> - When the results do not conform to the decision standards outlined in (5), fix the problem and restart the check from (1).
>
> Note:
> - The actual operation settings cannot be used for the charging test run, so reread the settings for the test.

(1) Check the man-machine charging system settings
 Record the charging system settings in the charging test run check sheet.
 Check the details of the data used for power apportionment billing.
 - Select the apportioning mode (Refer to section 8.14.2)
   → Check the apportioning reference data to be used.
 - Set the charges (Refer to section 8.16)
   → For the charging test run check, the unit price 1 is set as nighttime and unit price 2 is set as daytime in the charge time zone setting.
   (Use the same unit price with weekly charge setting enabled, annual charge setting disabled and seasonal interval setting disabled.)
   Set the applicable unit to "10" for both the unit price 1 and unit price 2.
   Set the air conditioner test run time zone so that it is carried over unit price 1 and unit price 2.

Example) Air conditioner test run interval — 11:00 Unit price 1 (nighttime) — 12:00 — Unit price 2 (daytime) — 13:00 — 14:00 Unit price 1 (nighttime)
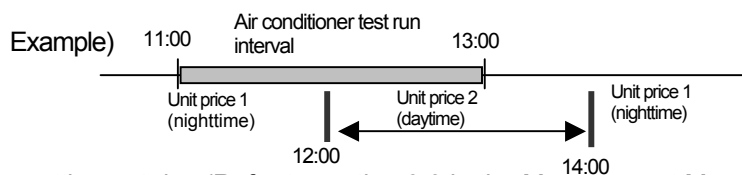
 - Set the settlement day (Refer to section 9.3 in the Management Manual)
   → For this charging test run check, set the next day as the settlement day.
 - Set the charging block (Refer to section 8.14.7)
   → Check that the charging block to be used is set.

* The (operation) block must be set to use the charging block. (Refer to section 8.11.10)
Check the following details for each indoor unit.
- Addresses of outdoor units in same cooling system. (Refer to section 8.7.4)
- Cooling capacity (performance) of indoor units (Refer to section 8.14.6)
- Power input of indoor units (Refer to section 8.14.6)
- Auxiliary heater of indoor units (Refer to section 8.14.6)

> Note:
> - Check that the details of each setting are correct.
>   (The air-conditioning charges will be affected if the set values are incorrect.)

(2) Run the air conditioners
Start all air conditioners from the man-machine (integrated software TG-2000A).
Confirm that each air conditioner runs, and record the state in the charging test run check sheet.

> Note:
> - Always run the all air conditioners for more than two hours on the day after the integrated software TG-2000A is started up.
>   (The judgment made in step (5) will be NG if the air conditioners are not run.)
> - Record the time that the air conditioner has run.

(3) Check the power apportioning billing calculation results
Open the Charging Data Maintenance window, and check the apportioning parameters (unit price 1, unit price 2) of all indoor units on the previous day. Record the results in the charging test run check sheet.

> Note:
> - Always check the details on the day after the air conditioners were run (charging test run). Check after 7:15 a.m.
> - Unit prices 3 to 5 are not used, so the apportionment value will be 0.

(4) Check the settlement results
Check the settlement results on the day after the air conditioners were run for the charging test run (third day). Then, print the air-conditioning charge settlement results or output them to a file. (Settle the account after 07:15 a.m. on the settlement day.)

(5) Check the judgment
Check whether "0" is set in any of the apportioning parameters in each block.
Using the "Charging data maintenance" function, compare the values with the time that the air conditioners were run (convert the time to a minute unit). Confirm that the fan operation time (applicable parameter) value is less than the compared value.
Judge the results as OK if all of the following judgment conditions are satisfied. (Check on the Charging Data Maintenance window.)
Condition (1) : The apportionment parameter is not "0"
Condition (2) : The indoor unit's fan operation time (applicable parameter) value is less than the time (minute unit) that the air conditioner was run

If the state is judged as NG, check and correct the following details.
- Charging block setting (block setting)
- Indoor unit setting (cooling capacity, power input, auxiliary heater)
Carry out the charging test run again after correcting the settings.

> Maintenance Tip:
> - After the charging test run, print out and check the first settlement day results.
> - If the system has been modified, check the results for the day after the modifications, and the results for ten days after or the first settlement day after the changes were made.

(6) Change to actual settings
     After completing the charging test run check, set the actual operation settings.

> Note:
> *   The following items are set to test run values for the charging test run. Change these to the actual operation values.
>   Weekly charge setting, annual charge setting, seasonal period setting, settlement date setting

(7) Copy of database
     After making the actual settings, copy the database (MJ-310G.***), and store it with the charging test run check sheet.

To make the check sheets easy to read, allocate one check sheet page for each installation floor or one AG-150A/G-50A unit.

Charging test run check sheet
[Checking order →]

Item	Division mode selection	Charge setting	Settlement date setting	Indoor unit setting contents	-	
Check						

Name of managed equipment								
Floor	AG-150A/ G-50A IP address	Unit address	Group address	Charge block name	Performance (Coolong capacity)	Power input	Aux. heater *1	Comment

-		-		Air conditioner operation check	Charge division results check	Decision check	Settlement check
				Hour-operation			

Check results							MEMO

Operation check	Outdoor unit charge calculation parameters			Indoor unit charge calculation parameters			MEMO
	Unit price 1	Unit price 2	Check	Unit price 1	Unit price 2	Check	

Total	

[Setting details check after test operation]

Item	Division mode setting		Charge setting						Settle-ment day setting	Comment
	Charge calculation reference data	-	Week	Seasonal	Year	Unit price				
						Weekend	Seasonal			
Check										

11.3.2 Proportionally Divided Power Charge (RS-485 WHM connection) Test Run Check

Charging test run check sheet (proportionally divided power charge (RS-485 WHM connection))
Perform the charging test run check after the test run check is complete.
Follow the order of testing prescribed by the charging test run check sheet and check the following items: (1) to (9).

> Note:
> - When the results do not conform to the judgment standards outlined in (7), fix the problem and restart the check from (1).

(1) Check the charge setting details on the man-machine console.
Write the charge setting details down on the charging test run check sheet.
Check the details of the data to ensure charging is operating correctly.
- Division mode selection (Refer to section 8.14.2)
  → Set the mode used.
- Charge setting (Refer to section 8.16)
  → Set the time using the with within/outside setting to perform the charging test run check.
  (Same unit cost for the With daytime/nighttime setting, Without weekend charge setting, and Without seasonal charge setting)
  For the unit cost, set both within and outside to 10.
  Execute the setting so that the test run time for the air conditioner is carried over both within and outside.

Example)
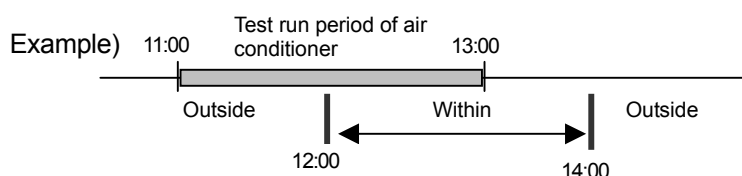
- Standard charge setting (Refer to section 8.16.3)
  → For charging test run check purposes, set "10,000".
- Settlement day setting (Refer to section 9.3 in the Management Manual).
  → For charging test run check purposes, set it to the next day
- Charge block setting (Refer to section 8.14.7)
  → Set the charge block to be manipulated
  * To set the charge block, (operation) block must be set. (Refer to section 8.11.10)

Check the following details for each indoor unit.
- Addresses of the outdoor units in the same refrigerant system (Refer to section 8.7.4)
- Which indoor units correspond to each watt hour meter (Refer to section 8.14.5)
- Cooling capacity (performance) of indoor units (Refer to section 8.14.6)
- Power input of indoor units (Refer to section 8.14.6)
  * The number of items to be confirmed depends on the charge apportioning method (mode).

Check the following details for each outdoor unit.
- Which outdoor units correspond to each watt hour meter. (Refer to section 8.14.3)
- Value of crank case heater (Refer to section 8.14.4)
  (If using the Super Y series, include the crank case heater of the subsidiary outdoor unit (OS).)
  * The number of items to be confirmed depends on the charge apportioning method (mode).

Check the following details for watt hour meter.
- Address (Refer to section 8.12.2)
- Maximum integrated value (Refer to section 8.12.3)
  * For Without WHM connection, the set contents do not have to be checked.

> Note:
> - Always ensure the details of each setting are correct.
>   (Incorrect setting details will affect air-conditioning charging.)

(2) Check the meter values of the watt hour meter (No. 1)
Check the name and the meter value of all the watt hour meters connected to RS-485 and write them down on the charging test run check sheet.
(The integrated value of the watt hour meter can be monitored by using the function "Management of charge data". For details, refer to section 9.2.4)

> Note:
> - Perform this on the day after the charging setting details on the man-machine console were checked.

(3) Let the air conditioner run
Operate all the air conditioners from the man-machine console (TG-2000A).
Check that all air conditioners are running and write it down on the charging test run check sheet.

> Note:
> - You must run all air conditioner units for longer than 2 hours.
>   (When they do not run for that length of time, the results will not pass the judgment standards outlined in (6) Judgment standards.)

(4) Check the meter values of the watt hour meter (No. 2)
After the air conditioners running operation is complete, check the name and the meter value of all the watt hour meters connected to RS-485 and write them down on the charging test run check sheet.

> Note:
> - Check that the measured meter value is larger than the value measured at step (2) above.
>   If the values are the same, operate the air conditioner again for at least 2 hours.
>   (It is recommended that test run be performed with the local remote controller and central controller.)

(5) Check the results of charging division
Check the following on the charge data maintenance screen and write them down on the charging test run check sheet.

> Note:
> - Perform this on the day after the air conditioner running operation (charging test run).

(6) Check the settlement results
Perform this two days after the charging test run. You should either print the settlement results or export them to a file.
(The settlement is carried out later than 05:10 on the day after the settlement day.)

(7) Judgment standards
With WHM connection: Check a ~ d.

a. Check that the electric amount of the watt hour meter (within-outside) is not "0".
   If the electric amount (within-outside) is not "0" then that is deemed OK.
   If the electric amount is "0", check the following details and rectify the problem.
   - Check if the meter value of the watt hour meter check increased by more than 1kWh from No. 1 to No. 2.
     If the value did not increase, redo the watt hour meter check and also redo the running operation of the air conditioners.
   - Check the transmission cable connection between the RS-232C of the computer and the watt hour meter.

b. Check that the division result (within-outside) is not "0".
   If the electric amount (within-outside) is not "0", then that is deemed OK.
   If the electric amount is "0", check the following details and rectify the problem.
   - Cooling capacity (performance) of Indoor units
   - Power input of Indoor units
   - FAN operation time and the capacity saving amount on the charge data maintenance screen.

c. Check to see if the total of the division results of all the indoor units matches the total of the watt hour meter.
Because division errors occur, a difference less than (the number of blocks × 0.1) kWh is deemed OK.
If the difference exceeds (the number of blocks × 0.1) kWh then check the following settings and rectify the problem.
   - Charge block setting (block setting)
   - Outdoor unit to watt hour meter relationship
   - Indoor unit to watt hour meter relationship

d. Check that the standard charge portion is included in the block settlement amount of the settlement results.
Block settlement amount = (total of block indoor units division electric amount totals) × unit price + standard charge
Because settlement errors occur, a difference less than number of blocks × minimum exchange unit is deemed OK.
When the difference exceeds (number of blocks × minimum exchange unit) then check the following settings and rectify the problem.
   - Charge block setting (block setting)
   - Standard charge setting

Note:
   - Only judgment standard d can be recalculated and rechecked.

Maintenance Tip:
   - After the charging test run check, check the result of the print out of the settlement day calculation for day 1.
   - If the system is modified, always check the calculation results of the next settlement day or one day after the change and 10 days after the change.

To make the check sheets easy to read, allocate 1 check sheet page for each installation floor unit or AG-150A/G-50A unit.

(8) Change to actual operation setting
After the charging test run check is completed, restore the regular field settings.

Note:
   - During charging test run, set the items shown below to the test run value. Set them to the value to be used.
      Charge setting, standard charge setting, settlement date setting

(9) Copy of database
After making the actual settings, copy the database (MJ-310G.***), and store it with the charging test run check sheet.

Charging test run check sheet
[Checking order →]

Item	Division mode selection	Charge setting	Standard charge	Setting details of indoor unit	Setting details of outdoor unit	
Check						

Name of managed equipment										
Floor	AG-150A/ G-50A IP address	Unit address	Group address	Block name	Performance (Cooling capacity)	Power input	Indoor unit WHM No.	Outdoor unit WHM No.	Outdoor unit address	Crank case heater

Check results of watt hour meter						
Watt hour meter No.	Model name	Maximum integrated value	Meter value No. 1	Meter value No. 2	Electric amount during hours	Electric amount out of hours
WHM1						
WHM2						
WHM3						
WHM4						
WHM5						
WHM6						

Watt hour meter setting details	Meter value check No. 1	Operation check	Meter value check No. 2	Charge division results check	Judgment check	Settlement check

Operat-ion check	Check results			MEMO
	Division electric amount			
	Within	Outside	Check	

Total	

[Setting details check after test operation]

Item	Division mode setting		Charge setting								Settle-ment date setting	Standard charge setting
	Indoor unit	Outdoor unit	Within / Outside	Week end	Seasonal	Unit price used (top: within / bottom: outside)					
						Standard	Weekend	Seasonal standard	Seasonal weekend			
Check												

173

11.3.3　Test run check of power apportionment billing (Electric amount pulse count)

Charging test run check sheet (Power apportionment billing (Electric amount pulse count))
Start the charging test run check after completing the test run check.
Check the following items (1) to (9) according to the test run operation procedures given in the charging test run check sheet.

> Maintenance Tip:
> • If the judgment made in step (7) is NG, correct the settings and then start again from step (1).
> Note:
> • The actual operation settings cannot be used for the charging test run, so reread the settings for the test.

(1)　Check the man-machine charge settings
　　　Record the charging system settings in the charging test run check sheet.

　　　Check the details of the data used for charging.
　　　• Select the division mode (Refer to section 8.14.2)
　　　　→ Set the mode to be used.
　　　• Set the charges (Refer to section 8.16)
　　　　→ For the charging test run check, the unit price 1 is set as nighttime and unit price 2 is set as daytime in the charge time zone setting.
　　　　　(Use the same unit price with daytime/nighttime setting enabled, annual charge setting disabled and seasonal interval setting disabled.)
　　　　　Set the applicable unit to "10" for both the unit price 1 and unit price 2.
　　　　　Set the air conditioner test run time zone so that it is carried over unit price 1 and unit price 2.

Example)　Air conditioner test run interval
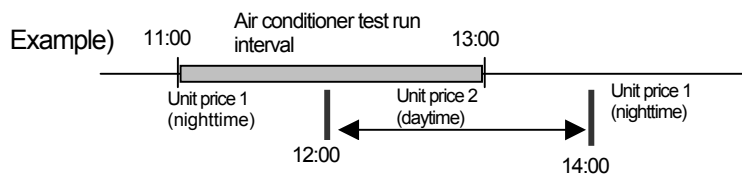
　　　• Set the basic charges (Refer to section 8.16.3)
　　　　→ Set "10,000" for the charging test run check.
　　　• Set the settlement day (Refer to section 9.3 in the Management Manual)
　　　　→ For this charging test run check, set the next day as the settlement day.
　　　• Set the charging block (Refer to section 8.14.7)
　　　　→ Set the charging block to be used.
　　　　* The (operation) block must be set to use the charging block. (Refer to section 8.11.10)

　　　Check the following details for each indoor unit.
　　　• Addresses of outdoor units in same cooling system. (Refer to section 8.7.4)
　　　• Correspondence of indoor units and watt hour meter (Refer to section 8.14.5)
　　　• Cooling capacity (performance) of indoor units (Refer to section 8.14.6)
　　　• Power input of indoor units (Refer to section 8.14.6)
　　　• Auxiliary heater of indoor units (Refer to section 8.14.6)
　　　　* The number of items to be confirmed differs according to the billing apportioning method (mode).

　　　Check the following details for each outdoor unit.
　　　• Correspondence of outdoor unit and watt hour meter (Refer to section 8.14.3)
　　　• Value of crank case heater (Refer to section 8.14.4)
　　　　(When using the SET-Y Series, also input the outdoor auxiliary unit (OS) crank case capacity.)
　　　　* The number of items to be confirmed differs according to the billing apportioning method (mode).

　　　Check the following details for each watt hour meter.
　　　• Applicable watt hour meter (Refer to section 8.13.4 or 8.8.4)
　　　• Pulse unit setting (Refer to section 8.13.4 or 8.8.4)
　　　　*When connecting to the PI controller, check the PI controller setting on G-50A also.
　　　　　Check the "Pulse Weight" in "function1"-"Measurement" in G-50A Initial Setting Web.
　　　• Change of the watt hour meter present value (Refer to section 9.2.5)

> ⚠ **Caution**
> * Visually confirm the pulse unit indicated on the watt hour meter itself before setting the pulse unit.
>   *Refer to the operation manual for the watt hour meter for details.
> * Check that the details of each setting are correct.
>   (The air-conditioning charges will be affected if the set values are incorrect.)

(2) Check watt hour meter values (**Before the test run of the air-conditioner:No.1**)
Check the types and meter values of all watt hour meters connected to the PLC or PI controller, and record the results in the charging test run check sheet. (The watt hour meter's meter count value can also be monitored from the "Charging Data Maintenance" function. Refer to section 9.2.5 for details.)

> Note:
> * Check the man-machine charging system settings on the day after the test run.
> * Confirm that the pulse is not reversed beforehand.

(3) Run the air conditioners
Start all air conditioners from the man-machine (TG-2000A).
Confirm that each air conditioner runs, and record the state in the charging test run check sheet.

> Note:
> * Always run the all air conditioners for more than two hours
>   (The judgment made in step (7) will be NG if the air conditioners are not run.)

(4) Check watt hour meter values (**After the test run of the air-conditioner:No.2**)
After running the air conditioners, check the type and meter values of all watt hour meters connected to the PLC or PI controller. Record the results in the charging test run check sheet.

> Note:
> * Check that the measured meter values are not larger than the values measured previously in step (2).
>   If the values are the same, run the air conditioners for another two hours or more.
>   (Carry out test run operation with the local remote controller or central remote controller.)

(5) Check the billing apportioning results
Open the Charging Data Maintenance window, and check the electric amount (unit price 1, unit price 2) of all indoor units and watt hour meter's electric amount (unit price 1 and unit price 2) on the previous day. Record the results in the charging test run check sheet.

> Note:
> * Always check the details on the day after the air conditioners were run (charging test run).
> * Unit price 3 to 5 are not used, so the apportionment value will be 0.

(6) Check the settlement results
Check the results on the next day after the charging test run. Print the settlement results or output to a file. (Settle the account after 05:10 a.m. on the settlement day.)

(7) Check the judgment
  a. Check whether "0" is set as the electric amount for the watt hour meters (Check on the Charging Data Maintenance window)
  Judge as OK if the electric amount (unit price 1, unit price 2) is not "0".
  If the electric amount is "0", check and correct the following details.
  * Check whether the values confirmed on the watt hour meter in check No. 1 and check No. 2 differ by more than 1kWh. If the value has not increased, check the watt hour meter, and run the air conditioners again.
  * Check the LAN connection between the PLC and computer.
  * Check the pulse wiring, etc., between the PLC and watt hour meter.

b. Check that the watt hour meter reading and the meter monitor value are not much different.
Check that the difference between the watt hour meter readings (visual check) and the difference between the meter monitor values are almost the same.

Meter reading（after the test run of the air-conditioner）
－Meter reading（before the test run of the air-conditioner）
Meter monitor value（after the test run of the air-conditioner）
－Meter monitor value（before the test run of the air-conditioner）

Check the following if there is a big difference between each difference.
・Pulse unit setting
・Pulse wiring between PLC and watt hour meter (or between PI ccontroller and watt hour meter)

c. Check whether "0" is set for any of the apportioning results in each block. (Check on the Charging Data Maintenance window)
Judge as OK if the apportioned electric amounts (unit price 1, unit price 2) are not "0".
（Reference）The relation between apportioning electric amount and mode is as follow.

	Apportioning mode	Confirmation
Apportioning electric amount of outdoor unit	Mode 1	Apportioning electric amount of outdoor unit = Other than 0
	Mode 2	Apportioning electric amount of outdoor unit = Other than 0 Electric amount of crankcase heater = Other than 0
	Mode 3	Apportioning electric amount of outdoor unit = Other than 0
Apportioning electric amount of indoor unit	Apportioned	Apportioning electric amount of indoor unit = Other than 0
	Not apportioned	－

* When the apportioning electric amount is small, "0.0kWh" is displayed.

If the electric amounts are "0", check and correct the following details.
• Cooling capacity of indoor units
• Power input of indoor units
• Fan operation time and performance save amount on Charging Data Maintenance window
• Correspondence of outdoor unit and watt hour meter
• Correspondence of indoor unit and watt hour meter

d. Check that the total of the apportioning results for all indoor units matches the total of the watt hour meters. (Check on the Air-conditioning Charge window)
There may be an error caused by an apportioning error or due to the number of displayed digits.
If the error is (number of blocks × 0.1) kWh or less, the state is OK.
If the error exceeds (number of blocks × 0.1) kWh, check and correct the following settings. (Note that this applies when the pulse unit is 1kWh/pulse or less)
• Charging block setting (block setting)

e. Confirm that the basic charges are included in the block settlement amount shown in the settlement results (Check with Air-conditioning Charge window)
Block settlement amount = (Total of apportioned electric amounts of indoor units in block) × Unit + basic charges
As there will be a calculation error, the value is OK if the error is the number of blocks × minimum currency unit (one yen) or less.
If the error exceeds the number of blocks × minimum currency unit, check and correct the following settings.
• Charging block setting (block setting)
• Basic charge setting

f. Check whether "0" is set for any of the apportioned electric amounts in the block.
Judge as OK if the apportioned electric amounts are not "0".
If the electric amounts are "0", check and correct the following details.
• Charging block settings (block setting)
• Indoor unit capacity

> Note
> • Only judgment reference d can be checked again after recalculating the values.
> Maintenance Tip:
> • After the charging test run, print out and check the first settlement day results.
> • If the system has been modified, check the results for the day after the modifications, and the results for ten days after or the first settlement day after the changes were made.

(Reference) Checking the apportioning results for one day
Check the watt hour meter using the "Charging Data Maintenance" function. Note that the results may differ if an irregular process is carried out.

Watt hour meter target	Apportioning mode	Confirmation method	Remarks
Outdoor unit	Mode 1	Confirm that the following total electric amount corresponding to the WHM is the electric amount for that watt hour meter • Electric amount apportioned to all outdoor units	
	Mode 2	Confirm that the following total electric amount corresponding to the WHM is the electric amount for that watt hour meter • Electric amount apportioned to all outdoor units • Electric amount of all crank case heater	*1
	Mode 3	Confirm that the following total electric amount corresponding to the WHM is the electric amount for that watt hour meter • Electric amount apportioned to all outdoor units • Common electric amount (crank case heater)	*1
Indoor unit	ON	Confirm that the following total electric amount corresponding to the WHM is the electric amount for that watt hour meter • Electric amount apportioned to all outdoor units	

*1: The crank case heater is calculated as being on 24 hours a day.
* An error of max. 0.5kWh/unit may occur due to a calculation error or an error in the number of display digits. (Check with the settlement results.)

To make the check sheets easy to read, allocate one check sheet page for each installation floor or one G/W unit.
* Two unit prices can be kept on this check shee. Change the form if necessary.

(8) Change to actual settings
After completing the charging test run check, set the actual operation settings.

> Note:
> • The following items are set to test run values for the charging test run. Change these to the actual operation values.
> Weekly charge setting, annual charge setting, seasonal period setting, basic charge setting, settlement date setting

(9) Copy of database
After making the actual settings, copy the database (MJ-310G.***), and store it with the charging test run check sheet.

Charging test run check sheet(1/2)

◆Be sure to save the result of the charging test run.

Date: _____

Worker: _____

TG-2000A Ver._____   AG-150A/G-50A Ver._____

[Confirming procedure]

	Item		Check/Result	MEMO
1	Division mide selection			
2	Charge setting			
3	Basic charge setting			
4	Settlement date setting			
5	Charge block setting			
6	Indoor unit setting contents			
7	Outdoor unit setting contents			
8	Electric amount setting contents			
9	Meter value check (before test run)			
10	Operation check			
11	Meter value check （after testrun）			
12	Charge division results check			
13	Decision check	a		
		b		
		c		
		d		
		e		
		f		
14	Settlement check			

[Check sheet for eache indoor unit]
　　　* Use the check sheet (2/2).

[Electric amount check sheet]
　　　　　＜Check date＞　Before test run　（Meter reading value：[　　　　] Monitor value：[　　　　]）
　　　　　　　　　　　　　After test run　（Meter reading value：[　　　　] Monitor value：[　　　　]）

Watt hour meter check			[PLC NO.		IP address :			] *case of PLC		
			[AG-150A/G-50A NO.		M-NET address:			] *case of PI controller		
WHM No.	Model name /Serial number	Unit [kWh /pulse]	Meter value					Apportioning charging		(d) Chack
			Item	Before test run [kWh]	After test run [kWh]	Difference [kWh]	(b) Chack	Unit price1 [kWh]	Unit price2 [kWh]	
WHM1			Meter reading value							
			Monitor value					(Total)		
WHM2			Meter reading value							
			Monitor value					(Total)		
WHM3			Meter reading value							
			Monitor value					(Total)		
WHM4			Meter reading value							
			Monitor value					(Total)		
WHM5			Meter reading value							
			Monitor value					(Total)		

[Check sheet for apportioning result and watt hour meter]

Item	Electric amount[kWh]	Result	MEMO
Total of apportioning electric amount total			
Block total of apportioning result			

[Check sheet for block chargning]

Block name	Total charge	Check results		MEMO
		Charge	Basic charge	

[Check sheet for setting contents check after test run]

	Item	Contents	Check	MEMO
1	Division mode setting(Outdoor unit)			
2	Division mode setting(Indoor unit)			
3	Charge setting(Weekly)			
4	Charge setting(Annual)			
5	Charge setting(Seasonal)			
6	Unit price (Normal)			
7	Unit price (Seasonal)			
8	Settlement day setting			
9	Basic(standard) charge			
10	Copy the database	─		

◆Note◆
・Confirm the chargning calculation result of the first day after the test run, and check that the settings are correct.
・When the system is changed, be sure to check the calculation result in 10 days from the changed day or the next day, or on the next calculation day.
・Be sure to keep the charging test run check sheet (including the document on the setting change created by the user) since the check sheet or the database will be the important evidence when a trouble occurs.

Charging test run check sheet(2/2)

Name of managed equipment									
Floor	AG-150A /G-50A No.	Unit address	I/U Model name	Group address	Charge block name	Performance (Cooling capacity) [kW]	Power input [kW]	Aux. heater *1	I/U WHM No.

*1: This item is not used.

O/U WHM No.	O/U address	Crank case heater	Operation check	Apportioning electric amount			MEMO
				Unit price 1	Unit price 2	Check	

* O/U: Outdoor unit

Total of apportioning electric amount	

11.3.4 Charging test run operation methods

In the previous charging test operation methods, a short method was carried out for a minimum of three days or by changing the time. The function for simulating the charging test operation for a set time is explained below.

> Note:
> • With this function, the charges are calculated with the charge setting, time zone setting and basic charge settings.
> • Use the test operation check sheet shown in section 11.3.

With this charging test operation function, the air conditioning charges are calculated from a random start time to a random end time on a single day. The results are then displayed.

```
07/15      11:15                    07/15      13:15
  |          |                        |          |
           Start                               End
           <------------------------------------->
              Billing test operation period
```
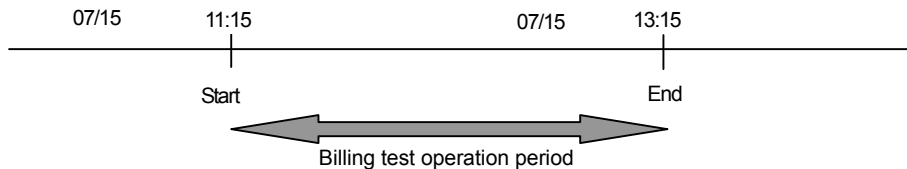
1) Click the [Test run for energy monitoring] button in the Maintenance group on the initial screen.

2) Click the [Start] button.
   Check the various charge settings and watt hour meter (meter) display values, and then press the [Start] button on the Charging test operation screen.

Start button
Charging test operation start button.
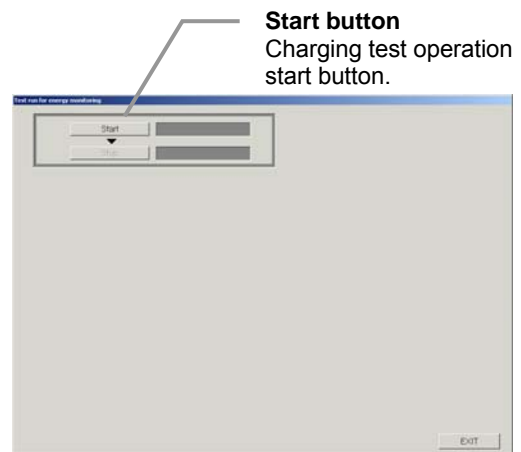
Charging test operation screen

3) A confirmation message appears. Click [Yes].
   When the [Yes] button is selected, each data item from the charging test operation will be collected.

TG-2000A
The start data for test run for energy monitoring is taken in.Is it all right?
Yes   No
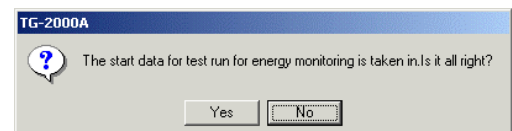
4) A message appears when the start process ends. Click the [OK] button.
   A completion message appears when collection of the various data at the billing data start point is completed.

TG-2000A
Taking in of the start data for test run for energy monitoring was completed.
OK

End button
Charging test operation end button.
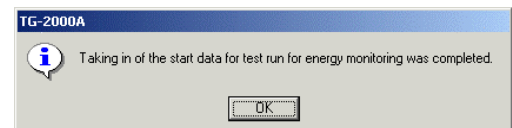
5) Run the air-conditioner in this state for two hours.
   Run the air conditioner for approx. two hours.
   (If possible, set the air conditioner mode to "Test Run" on the AG-150A/G-50A side.)
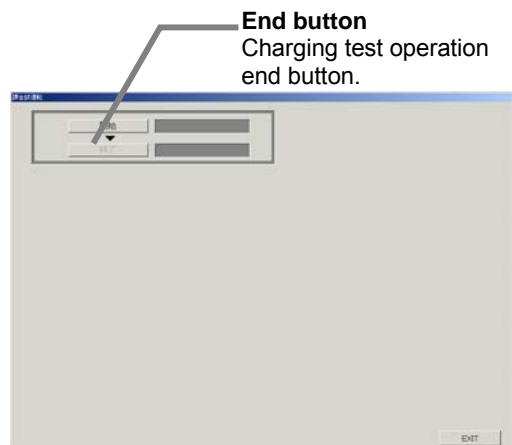
6) After two hours, click the [END] button.

182

7) A message appears when the end process ends. Click the [YES] button.
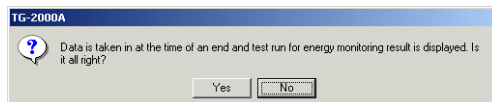
8) The test run results appear.
The air conditioning charges will be calculated for the interval between the selection of the "Start" and "Stop" buttons.

Crankcase heater calculation results
Shows the total of the crankcase heaters or the one-hour power rate.

Meter select button
The meter type can be selected.

Apportioning results per meter
Shows the charge results in meter units.

EXIT button
Closes this Charging test operation screen.

Apportioning results per block
Shows the billing apportion results in block units.

Unit price
Shows the charge unit used for the air conditioner calculation.

Output button
Outputs (print or CSV file) the charging test operation results.

Note:
• The results for the outdoor unit's crankcase heater are calculated as one hour.
• This function only allows for a quick check. Check the calculation results a few days later and after the first settlement date to ensure that the calculation is done correctly.

11.4 Energy saving and peak cut checks

About the check sheet for energy saving and peak cut setting
When setting energy saving and peak cut, use the check sheet below.
When using this sheet for peak cut check, please photocopy this and use it.

Check sheet for energy saving and peak cut setting

Building name　　[　　　　　　　　　　　　　　　　　　　]

Setting level　:　[　　　　　]　　　IP address of AG-150A/G-50A　　[　　　　　　　　　　　　　]

Operation Block		Group	Indoor control	
Block No.	Block name	Group No.	Control details *1	Control item *3
Example	Administrative Division	1,2,3,4,5	Temperature control	3 minutes
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

The difference of temperature *4: used or not [　　　]　[　　　] deg(^{o}C/^{o}F)

*1: Select from "Temperature control", "Fan operation(Thermo OFF)" and "Operationstop".

　　When controlling fan into K control models, "Fan" appears on the remote controller display. For M-NET Multi air-conditioner (M4), "Cool (Heat)" display remains.

*2: Choose the maximum operation capacity of outdoor units from 60%, 70%, 80%, 90%（by the 10%）and not carried out. Mr. SLIM (constant speed) and K-control

　　models are not applicable.

	Outdoor unit		Outdoor control	
	Outdoor address	Name	Performance save rate *2	Control item *3
	Date		Tester	

	Outdoor unit		Outdoor control	
	Outdoor address	Name	Performance save rate *2	Control item *3
	51	PAC-1-1	80%	15 minutes

*3: Select from 0 (not carried out) , 3, 6, 9, 15 and 30minutes

15 or 30 minutes is recommended for outdoor unit control

*4: Energy saving control is not carried out when the difference of the suction temperature and the target temperature is over the target point.

Set all atonce every AG-150A/G-50A.

11.5 System Information CSV Output

Output a CSV file of the settings performed during a test run of the TG-2000A (monitoring, operations, and charges) and use as a check sheet.

By outputting a CSV file, performance can be streamlined during the test run and erroneous transfer of settings can be avoided.

The output CSV file is automatically displayed in check sheet format in Excel using the test run check sheet tool (TestRunCheckSheet.xls) included in the TG-2000A system.

(* To use this function, TG-2000A must be version 5.02 or later.)

11.5.1 Air Conditioning Unit Start/Stop Information CSV Output

Output the system configuration of monitoring and operation (includes general control and I/O Signal) and various settings to a CSV file.

How to Output a CSV File

The CSV file can only be output from the "Initial Screen".
Begin from the "Initial Screen".

[Instructions]

1) From the menu bar, select [Tool] – [System information CSV output] – [Air conditioning unit start/stop test].
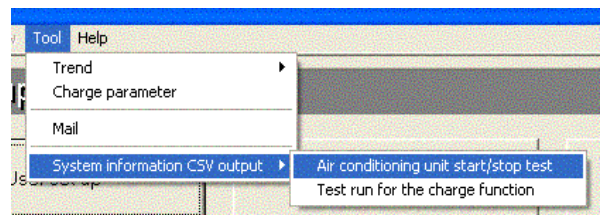
2) Enter the name of the export file.
Click the [Select] button to browse the output folder.
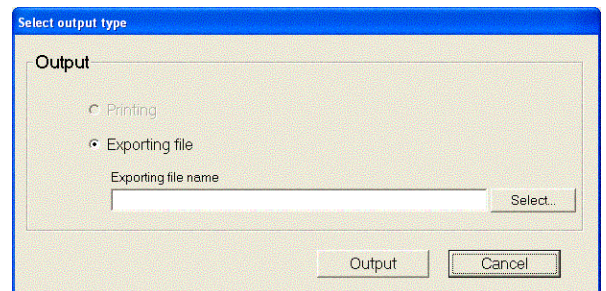
3) Click the [Output] button.
When the [Output] button is clicked, the CSV file is output.
When the [Cancel] button is clicked, the setting is canceled and returns to the Initial Screen.

Caution:
Do not directly edit the CSV file.
If edited, the test run check sheet creation tool may not function properly.

11.5.2 Test Run for the Charge Function Information CSV Output

Output the system configuration and various settings of the charge system (basic charge, PLC (or PI controller) charge, RS-485 charge) to a CSV file.
(This function is not available if the Charge function is not available/not in use.)

How to Output a CSV File
The CSV file can only be output from the "Initial Screen".
Begin from the "Initial Screen".

[Instructions]

1) From the menu bar, select [Tool] – [System information CSV output] – [Test run for the charge function].

* This cannot be selected if the Charge function is not available.
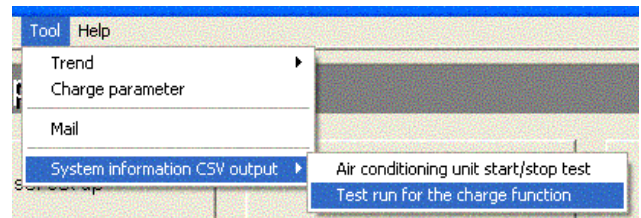
2) Enter the name of the export file.
Click the [Select] button to browse the output folder.
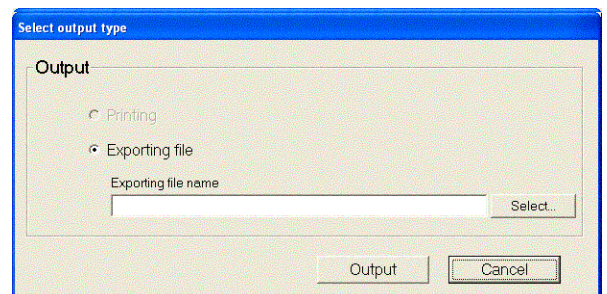
3) Click the [Output] button.
When the [Output] button is clicked, the CSV file is output.
When the [Cancel] button is clicked, the setting is canceled and returns to the Initial Screen.

Caution:
    Do not directly edit the CSV file.
    If edited, the test run check sheet creation tool may not function properly.

11.5.3 Create a Test Run Check Sheet

Use the System information CSV output function to create a test run check sheet using the output CSV file.
The test run check sheet tool is included in the composite software TG-2000A setup disk (CD-ROM). Copy this to use.

File in the CD-ROM ¥Tool¥TestRunCheckSheet.xls

Note:
・ The "TestRunCheckSheet.xls" uses macros. If a message stating that macros cannot be used is displayed, change the macro security level.

[Instructions]
1) Open "TestRunCheckSheet.xls".
   In Explorer, double-click "TestRunCheckSheet.xls" and open with Excel. The test run check sheet screen appears.
2) Click the [Selection of a data file and sheet creation] button.
   In the test run check sheet screen, click the "Selection of a data file and sheet creation" button. The "Open" screen appears.
3) Select the data file.
   Select the data file to import.
4) Click the [Open] button.
   Click the [Open] button to import the data file. The test run check sheet is automatically renamed and is displayed in the Excel screen.
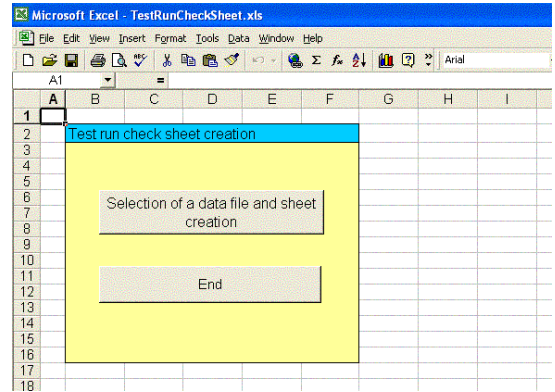
* TestRunCheckSheet.xls is closed and the check sheet is displayed in a new Excel file Book.

						Function setting		
Air conditioning unit start/stop test check sheet			Site name	graphic of csv				
PLCNo.	PLC IP address	Place of installation	PLC Type	PLC S/W version	Air-conditioner state monitoring	Peak-cut	General equipment state monitoring	
101	192.168.1.171	-	-	-	Activate	Deactivate	Activate	
General Equipment information				Function setting				
Address	Short name	Long name	Operation setting	Status display	Schedule	Error content		
101-1	101-1	101-1	Activate	ON/OFF	Deactivate	-		

Note:
・ Regardless of whether the opened CSV file is for "Air conditioning unit start/stop test" or "Test run for the charge function", the file type is automatically determined and a check sheet is created.

* If the selected CSV file is not in test run check sheet data format, the following message appears and the test run check sheet is not created.
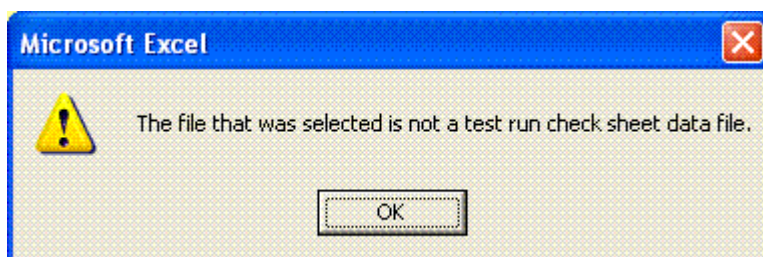
The created check sheet can be printed to use.

The following two file types are available for the test run check sheet. There are different sheets in each file.

・ Check sheet created from Air conditioning unit start/stop test CSV file

(1)   (2)   (3)   (4)

Sheet name
(1) Connection G-50   Information about the connected AG-150A/G-50A
(2) UnitG-50No.1   Information about the unit connected to the AG-150A/G-50A
    UnitG-50No.2
                 .   (* A sheet is created for each connected AG-150A/G-50A unit)
                 .
                 .
(3) General Equipment (IC IO signal)   Information about the connected I/O Signal
(4) General Equipment   Information about the connected PLC and general equipment

・ Check sheet created from Test run for the charge function CSV file

(5)   (6)

Sheet name
(5) Charge   Settings regarding charges
(6) UnitG-50No.1   Charge information of units connected to the AG-150/G-50A
    UnitG-50No.2   (* A sheet is created for each connected AG-150A/G-50A unit)
                 .
                 .
An example of the test run check sheet is shown on the next page.

(1) Air conditioning unit start/stop test check sheet (Output example) "Connection G-50"

Air conditioning unit start/stop test check sheet		Site name					CSV Output Date:10/21/2006 08:05			

G-50No.	G-50 IP Address	G-50 name	G-50 Unit ID	G-50 Serial number	G-50 S/W Ver.	Monitor/Operation		Annual/Weekly Schedule		Apportioned
1	192.168.1.15	G-50 Trial Version	1	2562-03	3.09	ENABLE	Unlimited	ENABLE	Unlimited	ENABLE

		User setting								
Schedule	Trend	PLC for General Equipment	Energy save/peak cut	Charge						
Activate	Activate	Deactivate	Deactivate	Activate						

(2) Air conditioning unit start/stop test check sheet (Output example) "UnitG-50No.*"

Air conditioning unit start/stop test check sheet		Site name	graphic of csv					CSV Output Date:11/1/2006 10:56		

Floor No.	Floor Name	G-50No.	Outdoor unit address	Outdoor unit model name	Indoor unit address	Indoor unit model name	Attribute	Remote controller address	Interlocked Lossnay address
1	No.1	1	51	PUHY-P300YGM-A	1	PCFY-P40VGM-E	IC	-	-
1	No.1	1	51	PUHY-P300YGM-A	2	PCFY-P40VGM-E	IC	-	-
1	No.1	1	51	PUHY-P300YGM-A	3	PCFY-P40VGM-E	IC	-	-
1	No.1	1	51	PUHY-P300YGM-A	4	PCFY-P40VGM-E	IC	-	-
1	No.1	1	51	PUHY-P300YGM-A	5	PCFY-P40VGM-E	IC	-	-
1	No.1	1	51	PUHY-P300YGM-A	6	PCFY-P40VGM-E	IC	-	-

	Date of test run			Person in charge			

Group information				Operation block information		TG-2000 => Air-conditioning machine operation check		Hand remote control => TG-2000 display check	
Group address	LCD name	Short name	Long name	Block No.	Block Name	Group unit	Error display check	Group unit	Error display check
1-001		1-001	1-001	1	Block1				
1-002		1-002	1-002	1	Block1				
1-003		1-003	1-003	1	Block1				
1-004		1-004	1-004	1	Block1				
1-005		1-005	1-005	1	Block1				
1-006		1-006	1-006	2	Block2				

(3) Air conditioning unit start/stop test check sheet (Output example) "General Equipment (IC IO signal)"

No.	Name		Operation output		Operation status input		Error status input		Floor information	
	Short name	Long name	Contact No.	Status display	Contact No.	Status display	Contact No.	Status display	Floor No.	Floor Name
1	FC1	FC1	CN52-2	ON/OFF	CN32-2	ON/OFF	CN32-2	Abnormal	2	No.2

Air conditioning unit start/stop test check sheet — Site name: graphic of csv — CSV Output Date:11/1/2006 10:56

Date of test run			Person in charge	

Display color information						Check item	
Operation output(On/Off)		Operation status input (On/Off)		Error status input		Operation display check	Error display check
Light Green	Gray	Light Green	Gray	Light Orange			

(4) Air conditioning unit start/stop test check sheet (Output example) "General Equipment"

Air conditioning unit start/stop test check sheet — Site name: graphic of csv — CSV Output Date:11/1/2006 10:56

PLCNo.	PLC IP address	Place of installation	PLC Type	PLC S/W version	Function setting			
					Air-conditioner state monitoring	Peak-cut	General equipment state monitoring	
101	192.168.1.171	-	-	-	Activate	Deactivate	Activate	

General Equipment information			Function setting				Floor information	
Address	Short name	Long name	Operation setting	Status display	Schedule	Error content	Floor No.	Floor Name
101-1	101-1	101-1	Activate	ON/OFF	Deactivate	-	2	No.2

Date of test run			Person in charge	

Display color information				Check item	
Operation display		Error/Warning display		Operation display check	Error display check
Light Green	Gray	Light Orange			

191

(5) Test run for the charge function check sheet "Charge"

Charge function test check sheet		Site name	graphic of csv				CSV Output Date:11/1/2006 10:57				

Meter/PLC		The division base data for outdoor unit	The division mode for outdoor unit	The division mode for indoor unit	Charge setting						User setting	
					Settlement date(day)	Currency unit	Standard charge	Seasonal charge	Weekly charge	Annual charge	Charge for FU	Charge for A/K control unit
Activate		Capa. saving rate	Mode2	Apportioned	20	EUR	Deactivate	Deactivate	Activate	Deactivate	Deactivate	Deactivate

	Standard					Season				
	Unit price1	Unit price2	Unit price3	Unit price4	Unit price5	Unit price1	Unit price2	Unit price3	Unit price4	Unit price5
Air-con	10	5	0	0	0	-	-	-	-	-

Check item		Check
Did you make the exterior unit/interior unit operate per watt hour meter, and has only the corresponding watt hour meter counted?		
(Are not the watt hour meter and the exterior unit power line reverse?)		

	TG-2000 setting information							Meter Model name	Meter Serial number	Pulse value	Pulse unit		Before a
PLCNo.	PLC IP address	Meter No.	Meter name	Meter kind	Pulse setting value	Unit	Standard charge						Meter display
1	192.168.1.151	1	Meter1	Air-con	0.01	kWh	0						
1	192.168.1.151	2	Meter2	Air-con	0.01	kWh	0						

Check item	Check
Are the pulse unit of a watt hour meter and the pulse unit set up by TG-2000 correct?	
The amount of electric power of the corresponding watt hour meter is TG-2000. Has it counted equally?	
(Is not during the watt hour meter and the pulse count PLC reverse?)	

The contents check of a setting after a test run

Item	Proportional division mode setup		Charge set					Settlement of accounts day specification	Standard charge setting
	Outdoor unit	Indoor unit	Weekly charge	Annual charge	Seasonal charge	Unit price			
						Unit price	Season		
Check									

	Date of test run			Person in charge			

Tester	:
Approved by	:

confirmed information

Measurement meter main part				TG-2000 monitor value			Measurement result						
test run	After a test run		A different monitor value	Monitor value before a test run	Monitor value after a test run	A different monitor value							
Measurement value	Meter display	Measurement value					Operation check	Unit price1	Unit price2	Unit price3	Unit price4	Unit price5	Check

Air-con electric-energy sum total
Electric 1 and Electric 2 electric-energy sum total
The amount sum total of Gas
The amount sum total of Water
The amount sum total of Calorie

192

(6) Test run for the charge function check sheet   "Unit G-50 No.* "

Charge function test check sheet		Site name		graphic of csv							CSV Output Date:11/1/2006 10:57			

Floor No.	Floor Name	G-50No.	Outdoor unit address	Outdoor unit model name	CCH capacity	Indoor unit address	Indoor unit model name	Indoor unit WHM	Outdoor unit WHM	Capacity setting			Group address
										Indoor unit capacity	Fan capacity	Auxiliary heater capacity	
1	No.1	1	51	PUHY-P300YGM-A	0.05	1	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-001
1	No.1	1	51	PUHY-P300YGM-A	0.05	2	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-002
1	No.1	1	51	PUHY-P300YGM-A	0.05	3	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-003
1	No.1	1	51	PUHY-P300YGM-A	0.05	4	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-004
1	No.1	1	51	PUHY-P300YGM-A	0.05	5	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-005
1	No.1	1	51	PUHY-P300YGM-A	0.05	6	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-006
1	No.1	1	51	PUHY-P300YGM-A	0.05	7	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-007
1	No.1	1	51	PUHY-P300YGM-A	0.05	8	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-008
1	No.1	1	51	PUHY-P300YGM-A	0.05	9	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-009
1	No.1	1	51	PUHY-P300YGM-A	0.05	10	PCFY-P40YGM-E	2	1	4.50	0.100	-	1-010

	Date of test run			Person in charge		

Group information		Block information				The amount of proportional division electric power						
Short name	Long name	Operation Block No.	Operation Block Name	Charge Block No.	Charge Block Name	Standard charge	Operation check	Unit price1	Unit price2	Unit price3	Unit price4	Unit price5	Check
1-001	1-001	1	Block1	1	Block1	0							
1-002	1-002	1	Block1	1	Block1	0							
1-003	1-003	1	Block1	1	Block1	0							
1-004	1-004	1	Block1	1	Block1	0							
1-005	1-005	1	Block1	1	Block1	0							
1-006	1-006	2	Block2	2	Block2	0							
1-007	1-007	2	Block2	2	Block2	0							
1-008	1-008	2	Block2	2	Block2	0							
1-009	1-009	2	Block2	2	Block2	0							
1-010	1-010	2	Block2	2	Block2	0							

Appendix 1: Checking the Windows Service Pack Version and Memory Size

This section describes how to check the Windows Service Pack version and memory size.
TG-2000A will not operate properly if installed on a computer that does not meet the system requirements.
Check that the computer meets the system requirements as listed in section 2.1 "Requirements (system recommendations)" before setting up TG-2000A.

If the required version of Windows Service Pack is not installed.
Acquire an Update CD or download an appropriate version of the Service Pack from the Microsoft Corporation website to update the Service Pack.
URL for Microsoft Corporation: http://www.microsoft.com/
(Subject to change without notice)

If the minimum memory requirements are not met
Add a memory.
After adding a memory, check that the virtual memory setting is set to "Automatic" or "Recommended size".
(How to confirm or make this setting varies with the operating system (Windows Vista/XP/2000).)

1. Windows Vista

1) Checking the Windows Service Pack version and memory size
① Right-click [Computer] and select [Properties].
Check that the Windows Vista version and that the RAM is at least 1GB on the [View basic information about your computer] screen.
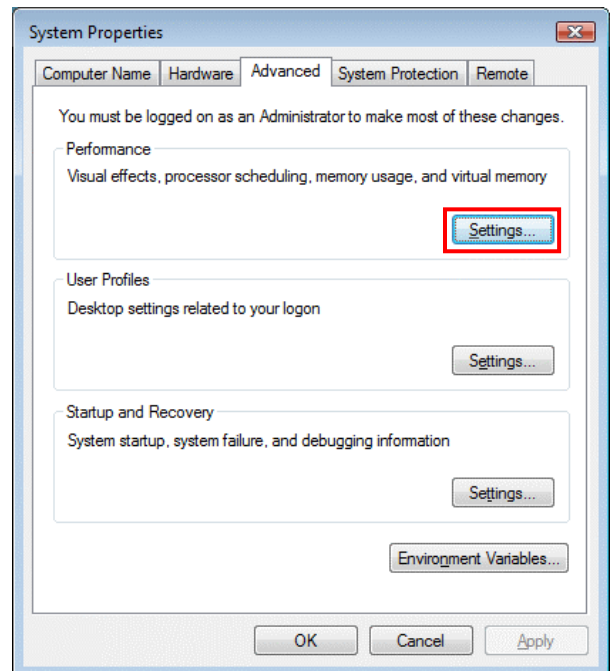
The Service Pack version is not listed in the screenshot on the right.
The RAM size in the right screen shows the actual RAM size (2GB=2048MB) minus the size of the memory that is required to generate screen images.
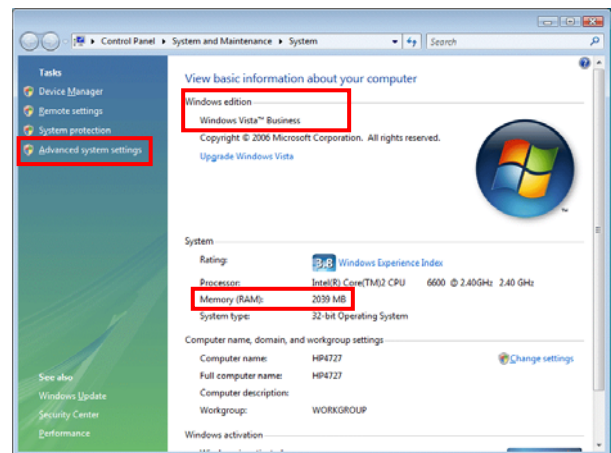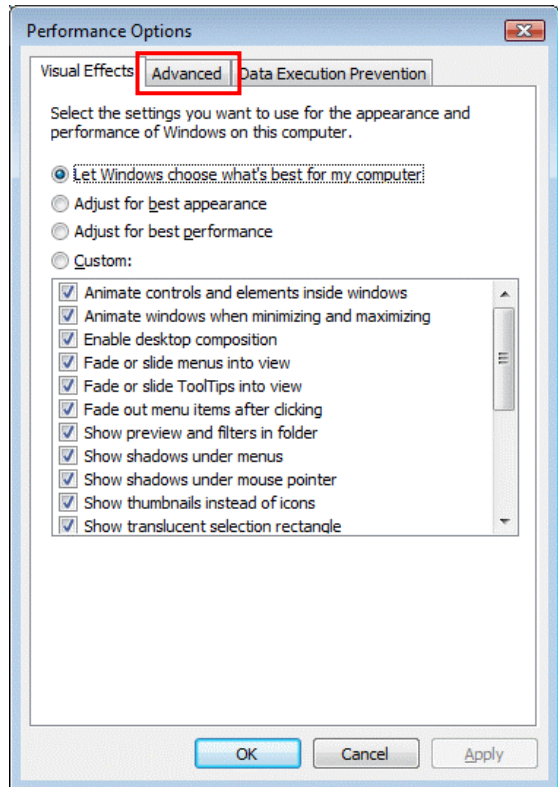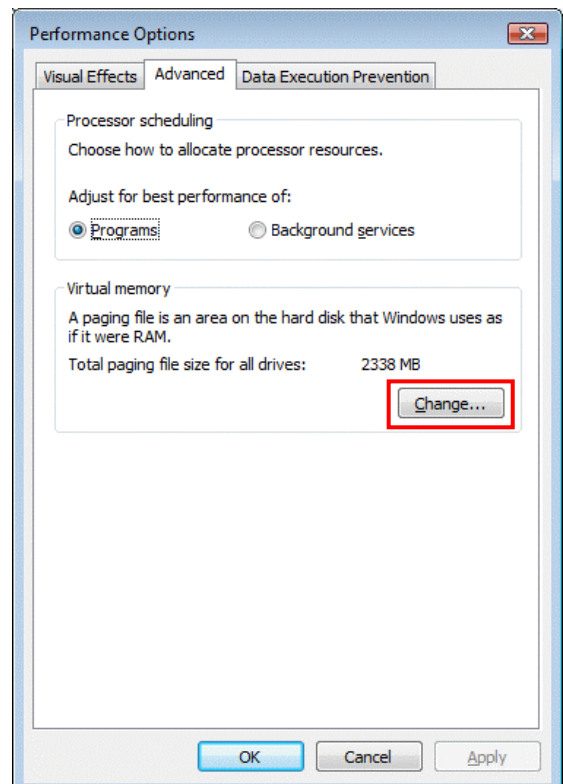
2) Checking the virtual memory size
① Select [Advanced System settings] under [Control Panel].
Click the [Advanced] tab in the [System Properties] window.
Then, click [Settings] under [Performance].

194

② Click the [Adavanced] tab in the [Performance Options] window.

③ Click [Change] under [Virtual memory] in the [Advanced] tab in the [Performance Options] window.

195

④ In the [Virtual memory] window, check that the box next to [Automatically manage paging file size for all drives] is checked.
If it is checked, click [Cancel] to close the window.
If it is not, check the box, and click [OK] to close the window.
The Windows needs to be restarted for the setting to take effect.
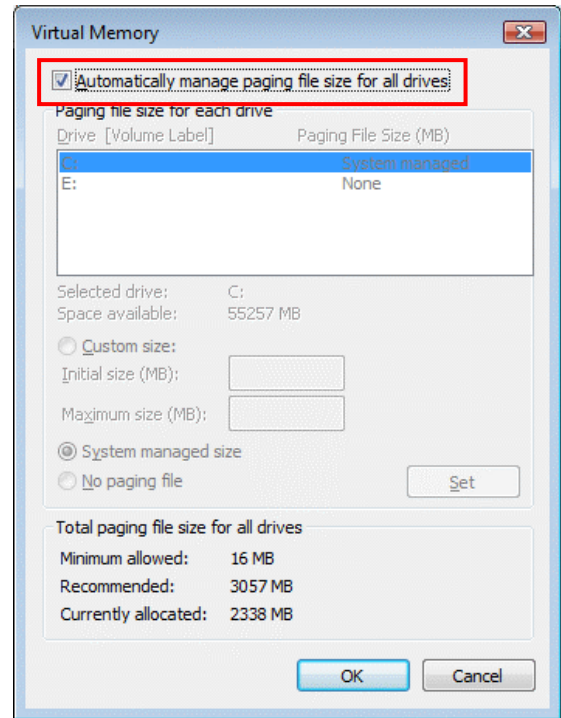
Note:
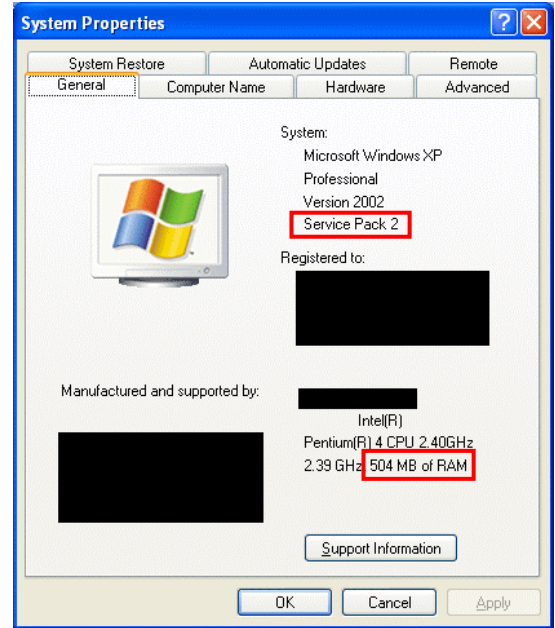This chapter briefly describes the setting procedure.
For details, refer to the attached "Windows Vista® Business" Manual.

2. Windows XP

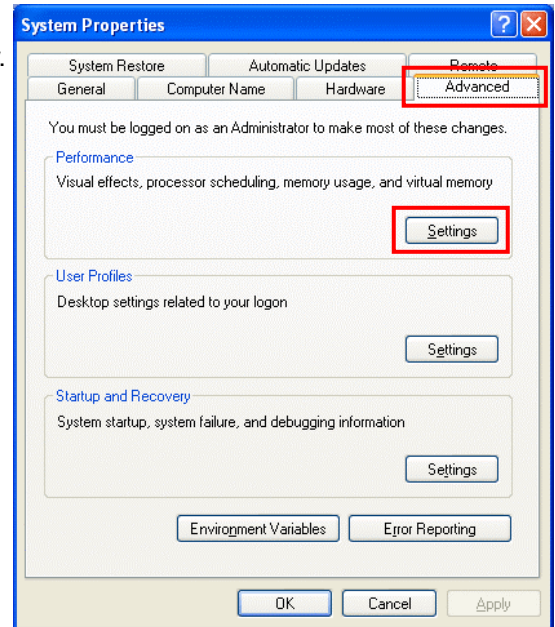1) Checking the Windows Service Pack version and memory size

① Right-click [My Computer] and select [Properties].
   Check that the Service Pack version is 2 or later and that the RAM is at least 512 MB in the [General] tab in the [System Properties] window.

   The RAM size in the right screen shows the actual RAM size (512 MB) minus the size of the memory that is required to generate screen images.
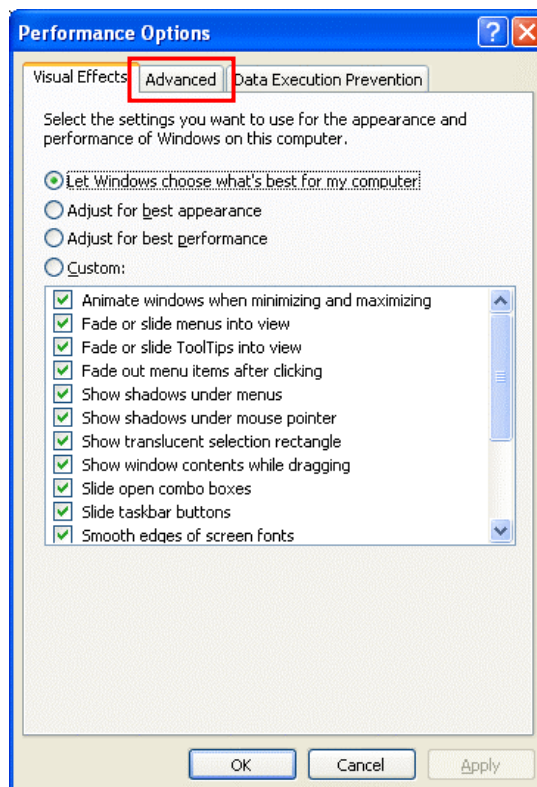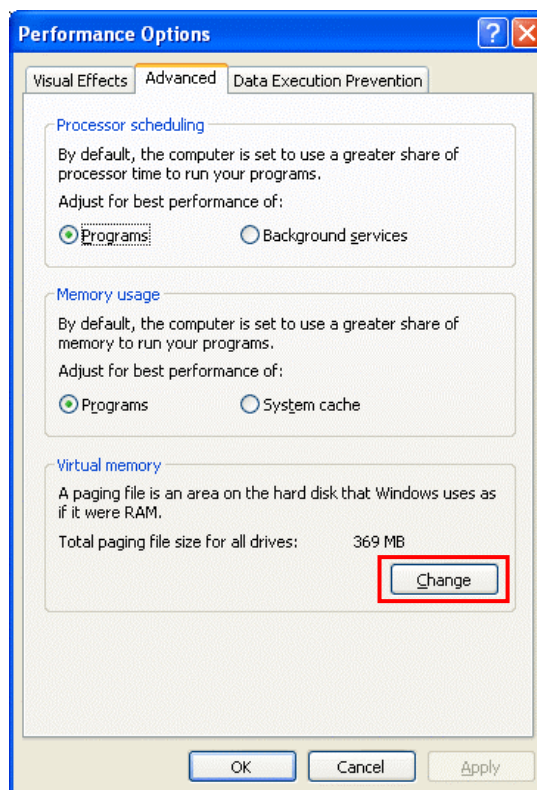

2) Checking the virtual memory size

① Click the [Advanced] tab in the [System Properties] window. Then, click [Settings] under [Performance].

197

② Click the [Advanced] tab in the [Performance Options] window.

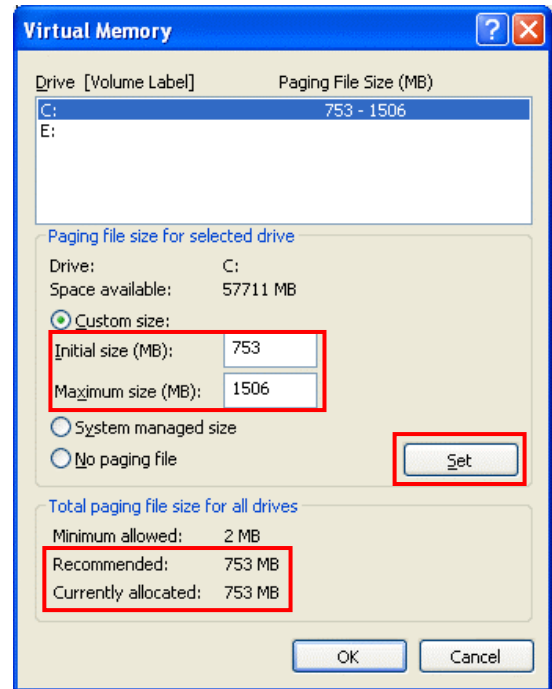③ Click [Change] under [Virtual memory] in the [Advanced] tab in the [Performance Options] window.

198

④ In the [Virtual Memory] window, check that the [Currently allocated] memory size under [Total paging file size for all drives] is the same as or close to the [Recommended] memory size.

. If it is the same as or close to the [Recommended] memory size, click [Cancel] to close the window.

If there is a large discrepancy, allocate the same amount of memory as the [Recommended] size to the [Initial size], allocate twice as much memory as the [Recommended] size to the [Maximum size], and click [Set].

Click [OK] to complete the setting.
The Windows needs to be restarted for the setting to take effect.

Note:
This chapter briefly describes the setting procedure.
For details, refer to the attached "Windows® XP Professional" Manual.

199

3. Windows 2000

### 1) Checking the Windows Service Pack version and memory size

① Right-click [My Computer] and select [Properties]. Check that the Service Pack version is 4 or later and that the RAM is at least 512 MB in the [General] tab in the [System Properties] window.

The RAM size in the right screen shows the actual RAM size (512 MB) (524,288KB) minus the size of the memory that is required to generate screen images.
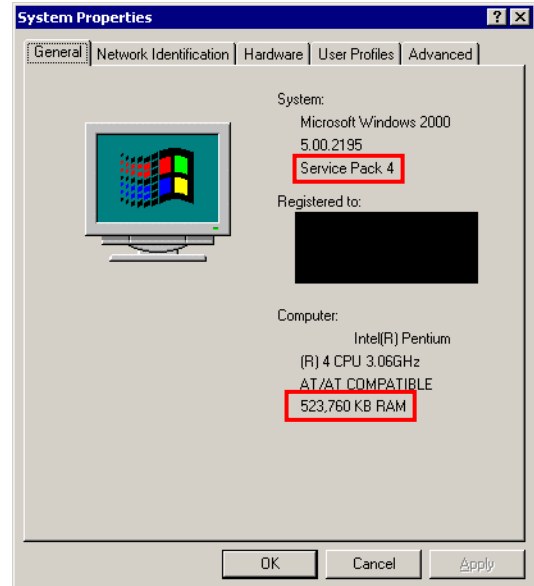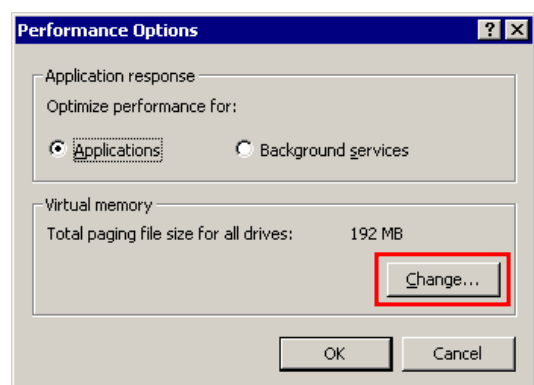
2) Checking the virtual memory size

① Click the [Advanced] tab in the [System Properties] window. Then, click [Performance Options] under [Performance].
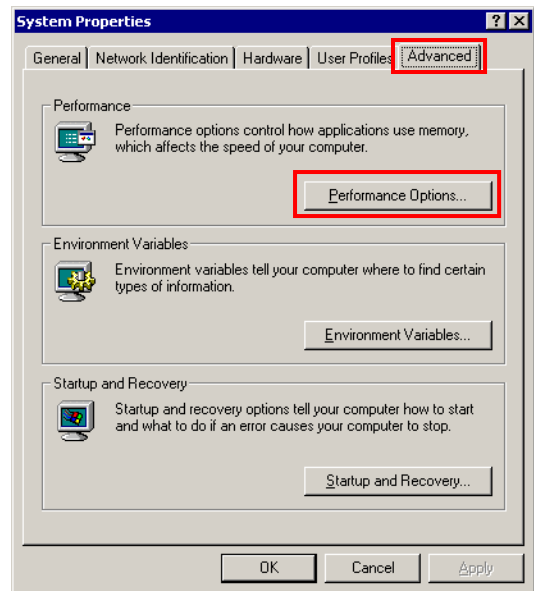
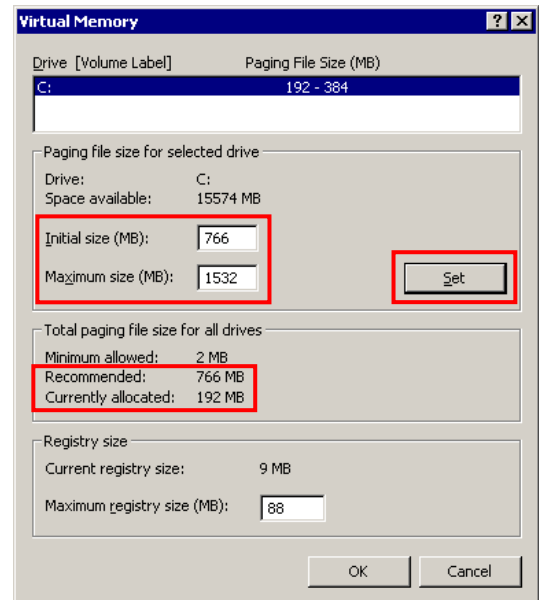② Click [Change] under [Virtual memory] in the [Performance Options] window.

③ In the [Virtual Memory] window, check that the [Currently allocated] memory size under [Total paging file size for all drives] is the same as or close to the [Recommended] memory size.

If it is the same as or close to the [Recommended] memory size, click [Cancel] to close the window.

If there is a large discrepancy, allocate the same amount of memory as the [Recommended] size to the [Initial size], allocate twice as much memory as the [Recommended] size to the [Maximum size], and click [Set].

Click [OK] to complete the setting.
The Windows needs to be restarted for the setting to take effect.

Virtual Memory

Drive [Volume Label]   Paging File Size (MB)
C: 192 - 384

Paging file size for selected drive
Drive: C:
Space available: 15574 MB

Initial size (MB):   766
Maximum size (MB):   1532   [Set]

Total paging file size for all drives
Minimum allowed: 2 MB
Recommended: 766 MB
Currently allocated: 192 MB

Registry size
Current registry size: 9 MB
Maximum registry size (MB):   88

                                OK   Cancel

Note:
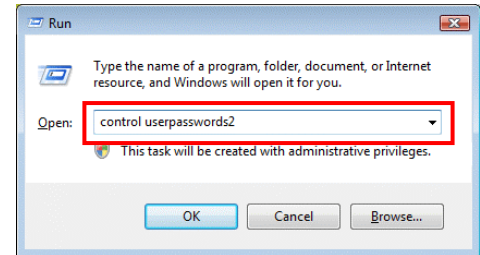   This chapter briefly describes the setting procedure.
    For details, refer to the attached "Windows® 2000 Professional" Manual.

201

Appendix 2: Auto Log-in Confirmation Method

This chapter describes the procedure for confirming that the Auto log-in setting is validated.
Note that the confirmation method may differ between Windows Vista, Windows XP and Windows 2000.

1. Windows Vista

1) Select [Run] from the [Accessories] menu. ([Start] -> [All Programs] -> [Accessories])

2) Enter "control userpasswords2" in the field, and click [OK].

3) <u>Uncheck the box next to "Users must enter a user name and password to use this computer."</u>
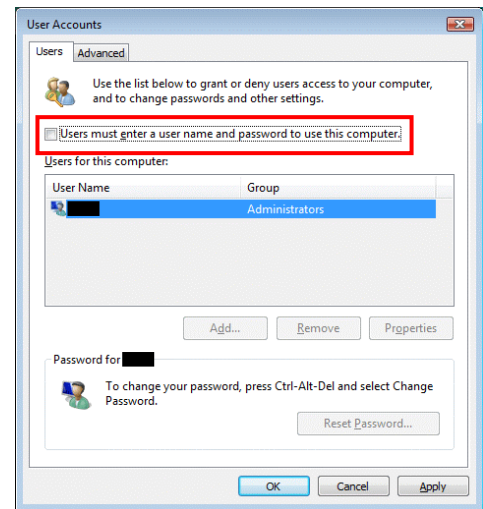
4) Click [OK].

Note:
   This chapter briefly describes the setting procedure.
   For details, refer to the attached "Windows Vista® Business" Manual.

2. Windows XP

1) Select [Run] in the [Start] menu.

2) Enter "control userpasswords2" in the field and click [OK].

3) Uncheck the box next to "Users must enter a user name and password to use this computer."
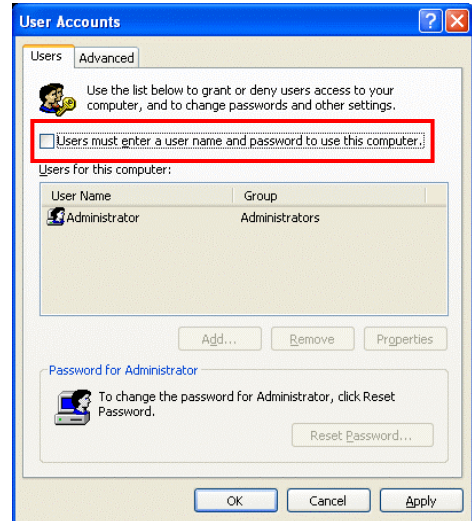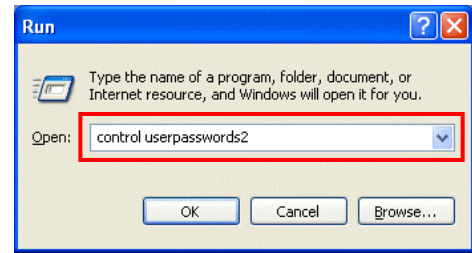
4) Click [OK].

Note:
  This chapter briefly describes the setting procedure.
  For details, refer to the attached "Windows® XP Professional" Manual.

3. Windows 2000

1) Select the [User and password] of [Control Panel].
2) Confirm that the check box "It is necessary to input the user name and password to use this computer" is not checked.

   If it is checked, remove the check. It is necessary to select the user name Administrator, and then to input the user name and password.
   Click the [Application] button and the Auto log-on setting screen is displayed.

3) Set the user name and password.
   Set the user name and password optionally on the Auto log-in screen.
   * It is possible to set the user name and password optionally, but it is recommended to set the following contents.
       User name : Administrator
       Password : TG-2000A

   After completing the setting, click the [OK] button.

4) Since the screen is returned to the user name/password screen, click the [OK] button to exit the operation.
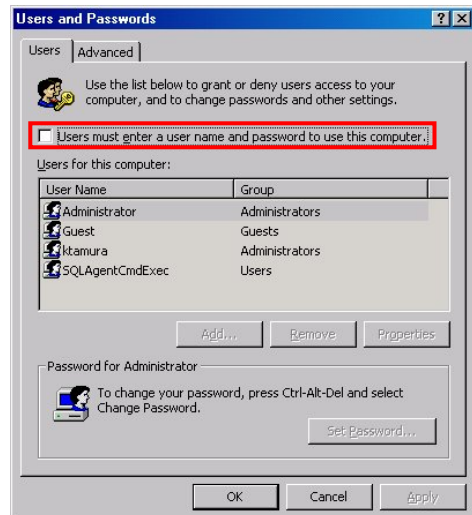
Note:
  This chapter briefly describes the setting procedure.
  For details, refer to the attached "Windows® 2000 Professional" Manual.

The corrections that must be made if the AG-150A/G-50A fails or is replaced when using the power apportioning billing function are explained in this chapter.

Note:
• The power apportioning charges for the fault period cannot be calculated if the AG-150A/G-50A is replaced, so special corrective measures must be taken when a fault occurs.

Clearing the charge comparison data when AG-150A/G-50A is replaced

Clear the charge comparison data in the replaced AG-150A/G-50A following section 9.6 "Maintenance of charge data during AG-150A/G-50A, PLC fault or replacement".
[Procedure] → Refer to section 9.6.
Target: Only AG-150A/G-50A that has failed or been replaced.

Example of "Charging data maintenance" when AG-150A/G-50A fails (for power apportionment billing (manual electric amount input)

An example of the corrections is given below.

[Procedure]
1) Select the [Charging Data Maintenance] button
   From the initial window, click the [Charging Data Maintenance] button in the Maintenance group.
2) Select the AG-150A/G-50A to be corrected.
   Select the replaced AG-150A/G-50A from "Select from AG-150A/G-50A".
3) Select the indoor unit icon.
   The "Unit Apportioning Data Maintenance" screen opens when the icon for the indoor unit to be corrected is clicked.
4) Correct the apportioning parameters.
   Correct the apportioning parameter for the fault period to "0". The value will change to blue when corrected.
   * The correction target period is from the date of fault occurrence to the day before recovery.

Unit Apportioning Data Maintenance screen

5) Correct the indoor units connected to the replaced AG-150A/G-50A.
   Correct the contents of the apportioning parameters (only fault period) of the indoor units managed by the replaced AG-150A/G-50A to the contents shown in step 4).
6) Select the methods for correcting the fault period from the following methods.
   The apportioning parameters for the fault period are processed with a special method, so select the correction method that matches the system. As an example, the following plans are given.

   Plan (1): Correcting using the average value for the week before the fault
     → The average value of the week before the fault is used as the apportioning parameter for one day. The apportioning parameters multiplied by the number of days in the fault period are calculated and input as the apportioning parameters for the day before the fault was recovered.
   Plan (2): Correction method using only correct period
     → The apportioning parameters for all indoor units within the fault period are not used. Instead only the correct period is used. Thus, the apportioning parameters for all indoor units during the fault period are set to "0".
7) Correct the apportioning parameters according to step 6).
   Correct the apportioning parameters for the corresponding indoor unit and date using the fault period correction method decided above.

8) Select Recalculate.
   If the account has already been settled, select Recalculate and recalculate the account for the corresponding month.

Example of "Charging data maintenance" when AG-150A/G-50A fails (for power apportioning billing (electric amount pulse count))

An example of the corrections is given below.

[Procedure]

1) Select the [Charging Data Maintenance] button
   From the initial window, click the [Charging Data Maintenance] button in the Maintenance group.
2) Select the AG-150A/G-50A to be corrected.
   Select the replaced AG-150A/G-50A from "Select from AG-150A/G-50A".
3) Select the indoor unit icon.
   The "Unit Apportioning Data Maintenance" screen opens when the icon for the indoor unit to be corrected is clicked.
4) Correct the apportioned electric amount.
   Correct the apportioning parameter for the fault period to "0". The value will change to blue when corrected.
   * The correction target period is from the date of fault occurrence to the day before recovery.
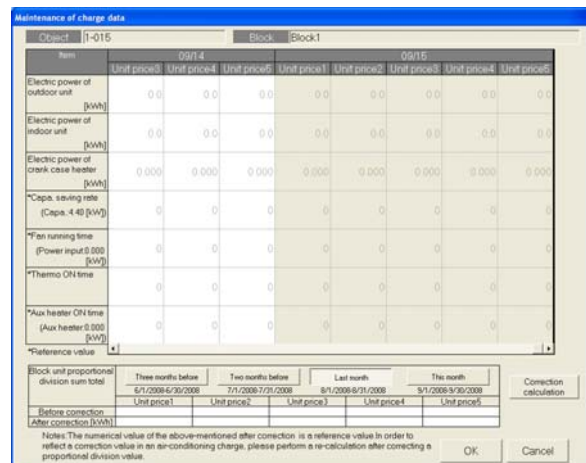
Unit Apportioning Data Maintenance screen

5) Correct the indoor units connected to the replaced AG-150A/G-50A.
   Correct the contents of the apportioning electric amount (only fault period) of all indoor units managed by the replaced AG-150A/G-50A to the contents shown in step 4).
6) Select the methods for correcting the fault period from the following methods.
   The apportioning parameters for the fault period are processed with a special method, so select the correction method that matches the system. As an example, the following plans are given.

   Plan (1): Correcting using the average value for the week before the fault
   → The average value of the week before the fault is used as the apportioning parameter for one day. The apportioning electric amount multiplied by the number of days in the fault period are calculated and input at the apportioning electric amount for the day before the fault was recovered.
7) Correct the apportioning electric amount according to step 6).
   Correct the apportioning electric amount for the corresponding indoor unit and date using the fault period correction method decided above.
8) Select Recalculate.
   If the account has already been settled, select Recalculate and recalculate the account for the corresponding month.

Procedures to shorten the charging test run (For PLC)

This charging test run must be carried out before starting actual charging.

> Note:
> - Perform the test run with TG2000A being set to "Always connected to AG-150A/G-50A system 'Activate' " on User Setting 2.
>   Set it back to "Always connected to AG-150A/G-50A system 'Deactivate' " if TG2000A is not to be put on the "Always connected to AG-150A/G-50A system 'Activate'."
> - Do not use this test run with a system that is already charging. Settlement of the current charges will not be possible, etc.

1. Preparation

Confirm that the air conditioner test run and the TG-2000A system's settings are completed before starting this charging test run.

1) Make the initial settings, including the charging system
   After installing TG-2000A, make all of the necessary settings, including the charging system.
   Confirm that test run of all air conditioners has been completed, and make sure that the correct date and time are set.

2) Stop all air conditioners.
   Confirm that all units in the air conditioner system are stopped. Use TG-2000A to stop any running air conditioners.

3) Change the settings for charging test run.
   Change the charging settings to those for confirming the charging test run.
   Refer to section 11.3 in the integrated software TG-2000A Instruction Manual (Site Adjustment).
   * Set the charge time zone as shown on the right.
     Unit price 1: 00:00 to 07:00, 09:00 to 24:00
     Unit price 2: 07:00 to 09:00
     Unit price 3: No setting
     Unit price 4: No setting
     Unit price 5: No setting
   * Check that the settlement date is set to the previous day.
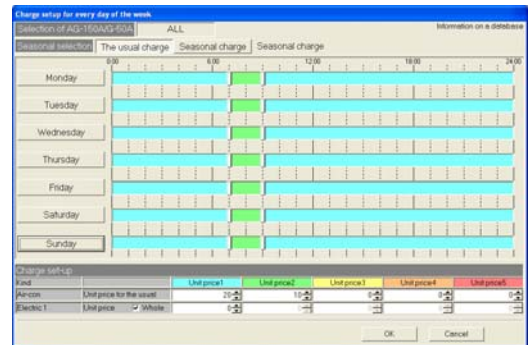
2. Charging test run

Return the date, and change the time as shown below to carry out the charging test run in a short time.
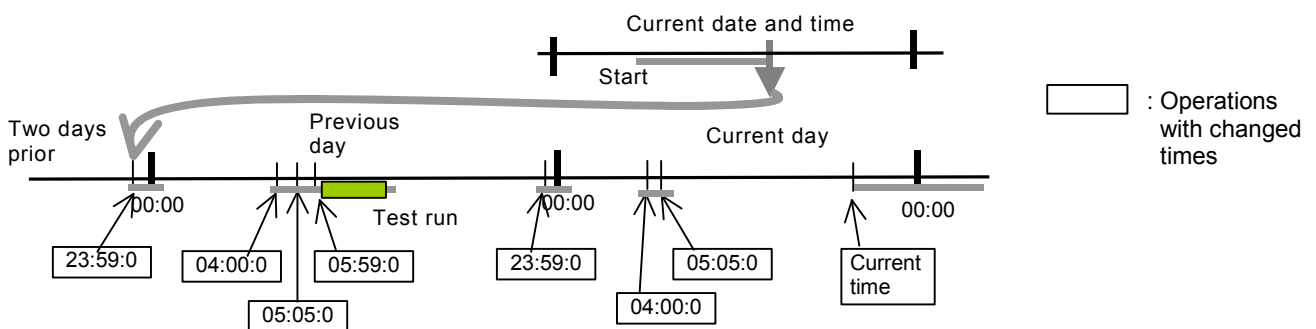
1) Return the date and time by two days
   Using the TG-2000A time setting function, return the time to "23:59:00 two days prior". (To change the date.)

2) Change to the charge processing time (part 1)
   Confirm that the TG-2000A computer's time is set to "00:05" or later. Then, using the time setting function, set the time to the charging process start time "04:00:00". (To collect data)

3) Change to the charge processing time (part 2)
   Wait for at least 15 minutes, and then change the time to "05:00:00" using the time setting function. (To calculate the apportionment) The message "Calculating apportionment. Wait" will appear while calculating the charges.

4) Change the time to the test run start time
   Wait 15 minutes and then change the time to "05:59:00" using the time setting function.

5) Test run all air conditioners

Start test run (operation) of all air conditioners after the TG-2000A computer's time reaches "06:00". Run the air conditioners for approx. two hours.

6) Stop the test run of all air conditioners.

After running the air conditioners for approx. two hours, stop all air conditioners with the TG-2000A.

7) Change the time to just before 0:00 hours

Set the time to "23:59:00" using the time setting function to execute the date change process.
* Never change the date.

8) Change to the charge processing time (part 1)

Confirm that the TG-2000A computer's time is set to "00:05" or later. Then, using the time setting function, set the time to the charging process start time "04:00:00". (To collect data)

9) Change to the charge processing time (part 2)

Wait for at least 15 minutes, and then change the time to "05:00:00" using the time setting function. (For apportionment and settlement) The message "Calculating apportionment. Wait" will appear while calculating the charges.

The messages "Calculating apportionment. Wait" and "Calculating account. Wait" will appear while calculating the charges.

- Charging test run check list -

Step	Operation details	Supplement	Check
1	Change the time to "23:59:00" two days prior	The time must be changed to two days or more prior to the current date	
2	Confirm that the time is set to "00:05" of the previous day		
	Change the time to "04:00:00"		
3	Confirm that the time is "04:15"		
	Change the time to "05:05:00"		
	Confirm that the message "Calculating apportionment. Wait" appears.	Confirm that the left message disappears or that 15 minutes have passed.	
4	Change the time to "05:59:00"		
5	Confirm that the time is "06:00"		
	Run all air conditioners.	Test run is sufficient. Run for two hours.	
6	Confirm that the time is "08:00"		
	Stop all air conditioners.		
7	Change the time to "23:59:00"	Never change the date.	
8	Confirm that the time is "00:05" of the current day.		
	Change the time to "04:00:00"		
9	Confirm that the time is "04:15"		
	Change the time to "05:05:00"		
	Confirm that the message "Calculating apportionment. Wait" appears.	Confirm that the left message disappears or that 15 minutes have passed.	
	Confirm that the message "Calculating account. Wait" appears.	Confirm that the left message disappears or that 30 minutes have passed.	

Maintenance Tip:
• Do not change the time so that it crosses over date lines, except under the following conditions.
  When changing the time to just before 0:00 hours two days prior in step 1.

Note:
• When changing the date with the charging test run, change the date to two or more days prior to the current date.

3. Check the charging test run results

Check the details explained in section 11.3.

4. Ending the test run

1) Correct the date and time to the current values

   After the test run, reset the date and time to the current values. If the test run is carried out using this shortened test run procedure, the date will be the current date, so only the time needs to be corrected.

2) Change the charging test run settings to the actual operation settings.

   Change the charging test run settings, such as the charge settings, to the actual operation settings.

Appendix 5: Backing Up the System Setting Data

The methods for backing up the data initially set in the system at the site into a different medium are explained in this section.

Backing up into a removal disk

The methods for copying and backing up the database files from the computer into a removable disk (FD, CD-R, USB Memory etc.) are explained below.
The required tools and procedures are given below.

[Required tools]
- Removable disk (Recordable medium (FD, CD-R, USB Memory etc.) compatible with the site's computer.)
- Compression tool (Necessary to use an FD medium)

Note:
- Always prepare a recordable medium and compression tool compatible with the site's computer.

1. Backing up the system setting data in the "Standard" mode

[Procedure]
1) Quit the integrated software TG-2000A program.
   Quit the integrated software program after initialization and test run.
   * The database file cannot be copied if the integrated software is running.
2) Select the "detach" icon.
   Double-click the "detach" icon on the desktop. The DOS window opens and a process takes place so that the database files can be accessed. The DOS window closes automatically when the detach execution program ends.
   * The database can be copied in this state.
3) Copy and paste "MJ310G.***".
   Copy the files (MJ310G.***) in the following folder.
   Folder   C:¥Mssql7¥data¥
   File name   MJ310G.ldf
                 Mj310G.mdf
   Paste the copied file into the removal disk.
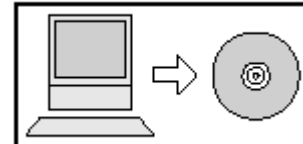
Note:
- When using an FD, create a random work file (example: C:¥work), and compress the folder into a size that can be copied onto the FD.
- When using a CD-R or USB Memory, the file can be copied with writing software without compressing the size.
- **The data such as the system information and charging data** is stored in MJ310G.***.

4) Select the "attach" icon.
   Double-click the "attach" icon on the desktop. The DOS window opens, and the file is processed so that it can be used as a database. The DOS window closes automatically when the attach execution program ends.
   * The files can be used as a database in this state.

Caution:
- The integrated software will not run properly if "attach" is not executed.

5) Start the integrated software TG-2000A program.
   Start the integrated software and make sure that it runs properly.

Note:
- A function is available to periodically (approx. once a day) back up the MJ310G.*** database into a designated folder in the computer's HDD. Refer to section 8.3.2 for details..
- Do not use the backup database except when the computer is replaced due to faults. The system information and charging data will overwritten with the backup data.

2. Backing up the system setting data in the "Wide area" mode

[Procedure]
   1) Quit the integrated software "Wide area TG-2000A" program.
      Exit "Wide area TG-2000A" using the "Site change tool."
   2) Exit the "Site change tool."
      Quit the "Site change tool" itself.
   3) Copy and paste database.
      Copy the files in the folders below, and paste them on to a removable disc.
         Folder location: C:¥program files¥tg2000¥ (site name)

         *Floor screen and sub screen are stored in the folder above.

Screen	Folder
Floor screen	C:¥TgsiteData¥tg2000¥(site name)¥Floor
Sub screen	C:¥TgsiteData¥tg2000¥(site name)¥Floor

   Note
      • If sub folders are used to organize files, the folder name will be included in the "site name."
      • Make a backup without the "Wide area TG-2000A" and "The site change tool" being run.

   CAUTION
      • Note that the data storage folder for the Wide Area mode has been changed.
        On the Ver. 5.10 or earlier, the location of the data storage folder is as follows:
        C:¥program files¥tg2000¥(site name)

   4) Start up the "site change tool."
      Click the icon for the program on the desktop to start up "Site change tool."
   5) Start up "Wide area" TG-2000A.
      Select the site to be connected to from the "site change tool," and start up TG-2000A.

3. Backing up the system setting data using the backup tool

[Procedure]
   1) Quit the integrated software TG-2000A program.
      Quit the integrated software program after initialization and test run.
       * The database file cannot be copied if the integrated software is running.
   2) Start up "DbBkup Tool."

   DbBkupTool....

      Start up [DbBkupTool.exe] in the TG-2000A installation folder.
   3) Designate the storage location and enter the file name.
      Designate an arbitrary storage location, and enter the file name.
      Press the [Save] button to output the backup data.

   Note
      •   DbBkupTool cannot be started up unless it is located in the TG-2000A installation folder.
      •   The following data will be backed up:
            Database (MJ310G.***, MJ310GT.***)
            Plane view for floor
            User icon
      •   When using the backup mode, files under a folder are excluded from the backup target in the Wide Area mode.
          When using the Wide Area mode, refer to the section "Backing up the system setting data in the Wide Area mode" for how to back up the data.

The methods of upgrading the "power apportion charging", "energy saving control" or "peak cut control" function are explained in this section.

1. Preliminary precautions

The following preparations are required before the air conditioner system can be expanded. The preparations differ according to the functions being used.

[Key] ○: Apply / –: Do not apply

	Contents	Service function		
		Monitor/ operation	Power apportion billing	General equipment monitor/operation
1	Information on the refrigerant system, group and operation blocks of the air conditioner system to be expanded	○	○	○
2	Information on the billing block for the air conditioner system to be expanded	○	–	–
3	Information on the air conditioner corresponding to the watt hour meter (meter) to be expanded	○	–	–
4	Information on the charges for the watt hour meter (meter) to be expanded.	○	–	–
5	Information on watt hour meter used for peak cut control	–	–	○
6	Information on set energy saving and peak cut control, etc.	–	○	○
7	Information on function upgrade license number	○	○	○

*1 : Version Ver. 1.01 or later is required for the electric amount count software.

2. Precautions for upgrading functions

Observe the following points when upgrading the air conditioner system's functions.
(1) The power rate, etc., cannot be counted while the power for the power rate count software PLC is OFF. (It is the same with when the power to the PL controller is OFF.)
Either turn the power OFF for the count target while the PLC (*1) power is OFF, or notify the owner that the power rate, etc., cannot be counted during the expansion work.

*1:It is the same with PI controller.

Never use the initial request button for an electric amount count software PLC that is running. If used, the charge data, etc., will all be cleared.
(2) When using the power apportion billing, the settlement period should be calculated before starting the upgrade. The results for the settled period should always be printed or output to a file. Normal charging may not be possible while the functions are being upgraded, so the air conditioner breaker should be turned OFF.
(3) Back up the TG-2000A database before and after the expansion work, and save each database. Refer to Appendix 5.

3. Operation methods

Upgrade the air conditioner system's functions with the following procedures.
The procedures are divided for the "power apportion billing", "energy saving" and "peak cut" addition functions, so carry out all steps corresponding to the function being used.

[Key] ○: Apply / –: Do not apply

Step	Contents		Addition functions		
	Work on TG-2000A side	Work on AG-150A/G-50A, PLC (or PI controller) and watt hour meter, etc., side	Power apportion billing *5	Energy saving	Peak cut
1	Stop all air conditioners. (Air conditioner breaker should be turned OFF.)		○	–	–
2	Settle the air conditioning charges for the term, and output the results.		○	–	–
3	Check the meter current value on the "System Equipment" screen, and record the value.	Record the value indicated by the meter	○	–	○
4		Turn the PLC (or PI controller) power OFF, and upgrade the version *2	○	–	○

Step	Contents		Addition functions		
	Work on TG-2000A side	Work on AG-150A/G-50A, PLC (or PI controller) and watt hour meter, etc., side	Power apportion billing *5	Energy saving	Peak cut
5		Install [PLC New] and set up	○	–	○
		Or Install [PI controller New] and set up			
6		Turn the PLC (or PI controller) power ON	○	○	○
7		Upgrade the AG-150A/G-50A version *3	○	○	○
8		Register the license number in AG-150A/G-50A	○	○	○
9	End TG-2000A, and back up the database. *1		○	○	○
10	Upgrade the TG-2000A version *3		○	○	○
11	[PLC New] Initialize the PLC *4 (Note: Do not select the "Initial request" button for a running PLC.)		○	–	○
	[PI controller New] Initialize PI controller.				
12	Turn the air conditioner power ON.		○	–	–
13	After the air conditioner has started up, restart TG-2000A.		○	○	○
14	Run all air conditioners and confirm that they operate.		○	○	○
15	Confirm that the watt hour meter value increments correctly.		○	–	○
16	Set the upgraded functions.		○	○	○
17	Test run the functions.		○	○	○
18	Stop the TG-2000A, backup the database, and restart TG-2000A. *1		○	○	○

*1 Refer to the Appendix 5: Backing up the system setting data.
*2 Refer to the version upgrading methods in the electric amount count software installation manual.
*3 Refer to Chapter 5 AG-150A/G-50A version upgrade methods and TG-2000A version upgrade methods.
*4 When setting the meters, do not select and execute the [Initial request] button for a running PLC.
     If inadvertently executed, the set values will be returned to the default values and could affect the power apportion billing.
*5 A PLC (electric amount count software) or PI controller is not required when using the manual electric amount input type power apportion billing.

Note:
   • The settings other than those that have been added or changed should also be confirmed.
   • Check the operation with charging test operation if necessary.

Use the Meter Recording Form Example on the following page when using meters.

Reference: Example of form for recording meter values

Meter	PLC /PI No.	Name	Installation place	Pre-operation value	Post-operation value	Difference	Judgment
Meter 1 (indicated value) (monitor value)							
Meter 2 (indicated value) (monitor value)							
Meter 3 (indicated value) (monitor value)							
Meter 4 (indicated value) (monitor value)							
Meter 5 (indicated value) (monitor value)							
Meter 6 (indicated value) (monitor value)							
Meter 7 (indicated value) (monitor value)							
Meter 8 (indicated value) (monitor value)							
Meter 9 (indicated value) (monitor value)							
Meter 10 (indicated value) (monitor value)							
Meter 11 (indicated value) (monitor value)							
Meter 12 (indicated value) (monitor value)							
Meter 13 (indicated value) (monitor value)							
Meter 14 (indicated value) (monitor value)							
Meter 15 (indicated value) (monitor value)							
Meter 16 (indicated value) (monitor value)							
Meter 17 (indicated value) (monitor value)							
Meter 18 (indicated value) (monitor value)							
Meter 19 (indicated value) (monitor value)							
Meter 20 (indicated value) (monitor value)							
Meter 21 (indicated value) (monitor value)							
Meter 22 (indicated value) (monitor value)							
Meter 23 (indicated value) (monitor value)							
Meter 24 (indicated value) (monitor value)							
Meter 25 (indicated value) (monitor value)							
Meter 26 (indicated value) (monitor value)							
Meter 27 (indicated value) (monitor value)							
Meter 28 (indicated value) (monitor value)							
Meter 29 (indicated value) (monitor value)							
Meter 30 (indicated value) (monitor value)							
Meter 31 (indicated value) (monitor value)							
Meter 32 (indicated value) (monitor value)							

The methods for expanding the air conditioner system's air conditioners or watt hour meters are explained below.

1. Preliminary precautions

The following preparations are required before the air conditioner system can be expanded. The preparations differ according to the functions being used.

[Key] ○: Apply / –: Do not apply

	Contents	Service function		
		Monitor/ operation	Power appor- tion billing	General equipment monitor/operation
1	Information on the refrigerant system, group and operation blocks of the air conditioner system to be expanded	○	–	–
2	Information on the billing block for the air conditioner system to be expanded	–	○	–
3	Information on the air conditioner corresponding to the watt hour meter (meter) to be expanded	–	○	–
4	Information on the charges for the watt hour meter (meter) to be expanded.	–	○	–
5	Presence of expansion PLC for power rate count software. Presence of PI controller to be expanded.	–	○	–
6	Information on functions of general equipment to be expanded	–	–	○
7	Presence of expansion PLC for PLC for general equipment software Presence of DIDO controller to be expanded.	–	–	○
8	Information on schedule for air conditioner group or general equipment to be expanded	○	–	○

2. Precautions for expansion

The following precautions apply when expanding the air conditioner system

(1) The power rate, etc., cannot be counted while the power for the power rate count software PLC is OFF. (It is the same with when the power to the PL controller is OFF.)
Either turn the power OFF for the count target while the PLC (*1) power is OFF, or notify the owner that the power rate, etc., cannot be counted during the expansion work.

*1:It is the same with PI controller.

(2) When using the power apportion billing function, the term must be settled before starting the expansion. The term's settlement results must be printed out or saved in a file. When the charge block is changed, etc., in the TG-2000A after the expansion work, the charges may not be apportioned correctly in some cases.

(3) When using the power apportion billing function, stop all air conditioners. The charges may not be processed correctly during the expansion work, so the air conditioner breaker should be turned OFF.

(4) Never use the Initial Request button on the power rate count software and PLC for general equipment software during operation. All of the billing data, etc., will be cleared if this button is pressed.

(5) Back up the TG-2000A database before and after the expansion work, and save each database. Refer to Appendix 5.

3. Operation methods

Expand the air conditioner system with the following steps.

The steps are separate for the "monitor/operation", "power rate apportion billing" and "general equipment monitor/operation" functions. Carry out all steps corresponding to the functions being used. Some steps include expansion of the PLC. Carry these out according to the actual expansion requirements at the site.

[Key] ○: Apply / –: Do not apply

Step	Contents	Service function		
		Only monitor/ operation	Power appor- tion billing	General equipment monitor/operation
1	Stop all air conditioners (and general equipment). * With power apportion billing function: Air conditioner breaker should be turned OFF.	○	○	○
2	Settle the air conditioning charges for the term, and output the results.	–	○	–
3	Check the watt hour meter (meter) current value on the "System Equipment" screen, and record the value. *1	–	○	–

Step	Contents	Service function		
		Only monitor/ operation	Power apportion billing	General equipment monitor/operation
4	End TG-2000A, and back up the database.	○	○	○
5	Record the watt hour meter or meter values. *1	–	○	–
6	Turn the PLC power OFF and connect any additional wiring for the watt hour meter, etc. Setup the additional PLC and connect the required wiring, etc.	–	○	○
	Turn the PI or DIDO controller power OFF and connect any additional wiring for the watt hour meter, etc. Setup the additional PI or DIDO controller, and connect the required wiring, etc.			
7	Start up the PLC by turning the power ON.	–	○	○
	Turn the PI or DIDO controller power ON and restart.			
8	Check the additional AG-150A/G-50A's version, and upgrade if required. Register the license No. if required.	○	○	○
9	Start up TG-2000A, and open the initial screen.	○	○	○
10	Set the additional AG-150A/G-50A with "AG-150/G-50A Connection Setting".	○	○	–
11	Set the additional AG-150A/G-50A or air conditioner, etc. with "System Configuration Setting". * Note: Never press the "Collect information from AG-150A/G-50A" button.	○	○	–
12	Set the additional PLC and general equipment with "PLC for General Equipment Setting". * Note: Never execute "Initial Request" for the existing PLC. Set the additional general equipment with "DIDO controller setting".	–	–	○
13	Set the name of the expanded air conditioner and general equipment with "Monitor Display Setting".	○	○	○
14	Set the additional PLC and watt hour meter (meter) with "Meter Setting". * Note: Never execute "Initial Request" for the existing PLC. Set the additional watt hour meter (meter) with "PI controller setting".	–	○	–
15	Set each item for the additional air conditioner with "Billing System Setting".	–	○	–
16	Check the set details with "Charge Setting". Set the charges for the additional meters, etc.	–	○	–
17	Set the added AG-150A/G-50A or air conditioner with "Energy Saving Setting".	○	–	–
18	Set the time with "Time Setting". * This can be skipped if noAG-150A/ G-50A, PLC, DIDO or PI controller has been added.	○	○	○
19	Press the "End Setting" button on the initial screen and open the Management screen. * Send the set details to the AG-150A/G-50A, etc.	○	○	○
20	Monitor the current value of the watt hour meter or meter on the "System Device" screen. Check and record the values for the new meters. *1	–	○	–
21	Turn the air conditioner power ON.	○	○	○
22	After the air conditioner has started up, restart TG-2000A.	○	○	○
23	Operate all air conditioners and confirm that the operation can be monitored. When using the power apportion billing function, confirm that the watt hour meter and meters correctly count up. *2 When using the general equipment functions, confirm that the equipment can be correctly monitored and operated.	○	○	○

*1. Record the existing meter's value, the TG-2000A monitor value and the new meter's value.
*2. If the meter's monitor value and indicated value match before and after the test operation after completing the settings, the values are being counted up correctly. However, if the electricity, etc., to the measuring target cannot be shut off, check and record the monitor value and indicated values for all meters.

Note:
- The settings other than those that have been added or changed should also be confirmed.
- Check the operation with charging test operation if necessary.

Reference: Example of form for recording meter values

Meter	PLC /PI No.	Name	Installation place	Pre-operation value	Post-operation value	Difference	Judgment
Meter 1 (indicated value) (monitor value)							
Meter 2 (indicated value) (monitor value)							
Meter 3 (indicated value) (monitor value)							
Meter 4 (indicated value) (monitor value)							
Meter 5 (indicated value) (monitor value)							
Meter 6 (indicated value) (monitor value)							

Appendix 8: Charging Setting for A and K Control and LOSSNAY Units

The procedures and notes for charging setting of A and K control and LOSSNAY units are explained below.
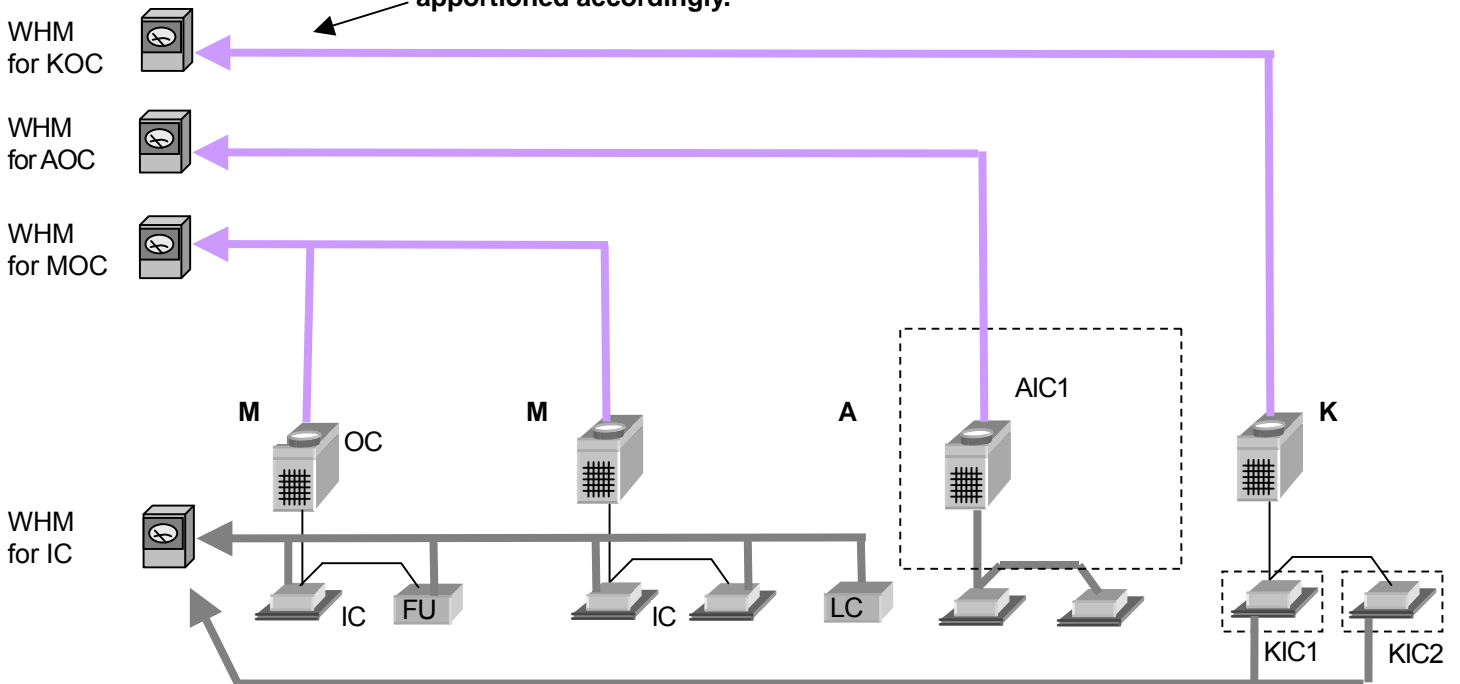
1. When M-NET (M), A-control and K-control units exist in the system
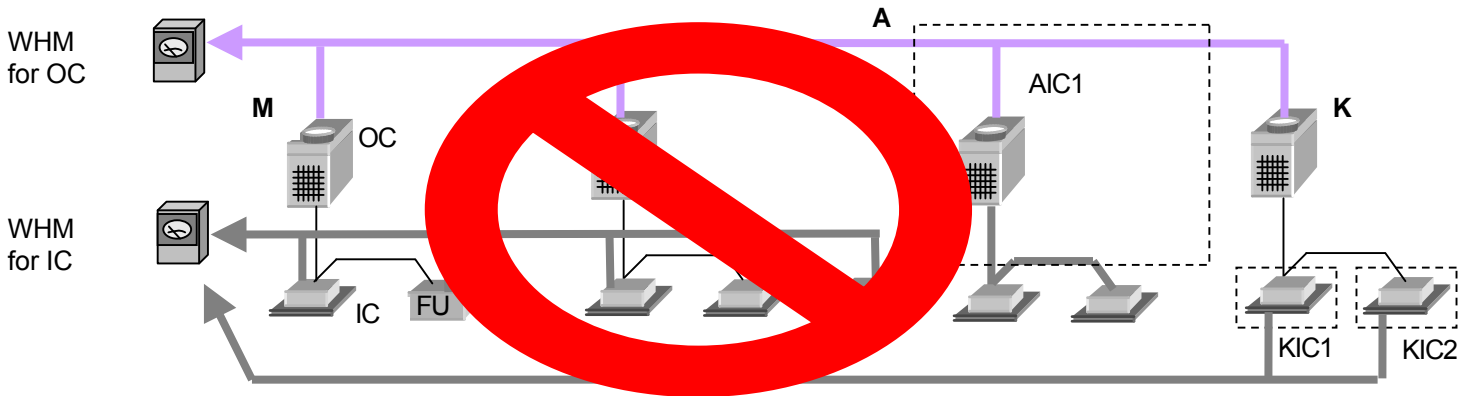

Note:
- Because charging may vary depending on performance (COP) of each unit, install separate OC (outdoor unit) WHM for each unit.

Even if the division mode is set to "Capacity save," it will automatically be reset to "Thermo-on time," and the billing will automatically be apportioned accordingly.

2. Set-up of A control units

2-1 When using OC power supply for IC (An auxililary heater is connected to WHM for OC.)

WHM for AOC

AIC1

AIC2

Auxiliary heater
Power supply
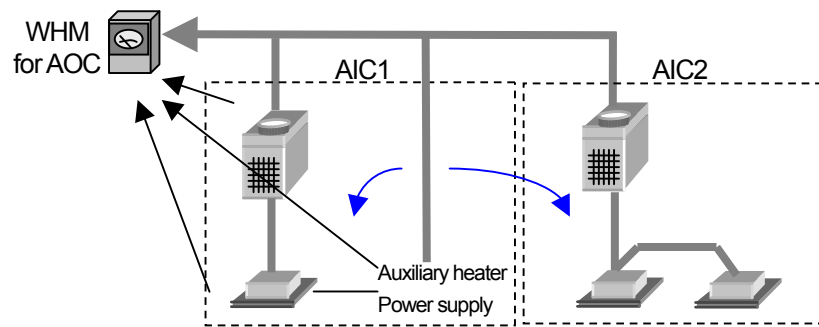
Charging for an auxililary heater is apportioned to all the units regardless of the use of an auxililary heater. Regardless of the number of the indoor units that are connected to the outdoor unit, certain settings on the indoor units are determined by the configuration of what is shown in the dotted lines in the figure above.

<Necessary setups>

Menu	Item	Setting	Note
User setting 2	WHM/Measurement meter connection Energy monitoring function Charge for A/K control unit	Other than no connection Activate Activate	A-controller is set to "AOC/AIC Same power supply".
AG-150A/G-50A connection set-up	AG-150A/G-50A setup	Set according to the system.	-
System configuration set-up	Unit composition set-up Set-up of group	No setup is required for AOC.	-
Measurement meter set-up	PLC and Measurement Meter Set-up	Set according to the system.	-
Energy monitoring set-up	Division mode Relation between OC and WHM OC setting IC setting Charge Blocks	Set according to the system.	No setup is required for relation between IC and WHM. Setup is required for power input. No setup is required for auxililary heater.
Charge setup	Setting of charge time zone etc.	Set according to the system.	—

・Make other settings if necessary.

・License registration of electricity apportioning billing function must be made on AG-150A/G-50A.

2-2 When using OC power supply for IC (An auxililary heater is connected to WHM for AIC.)

WHM for AOC

AIC1

AIC2

Auxililary heater

Power supply

WHM for AIC
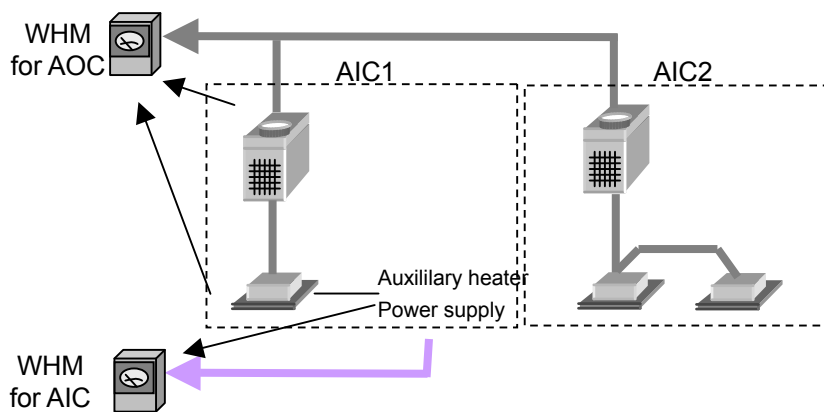
Note:
- The power consumption of the auxiliary heater alone cannot be calculated by installing a separate WHM in addition to the one for the outdoor unit. As shown in the figure above, install a WHM for the auxiliary heater, and use the watthour meter reading to figure out the charges. Consult your dealer if this type of system must be considered.

2-3 When using IC power supply and OC power supply IC separately (same billing system as that of M-NET models)
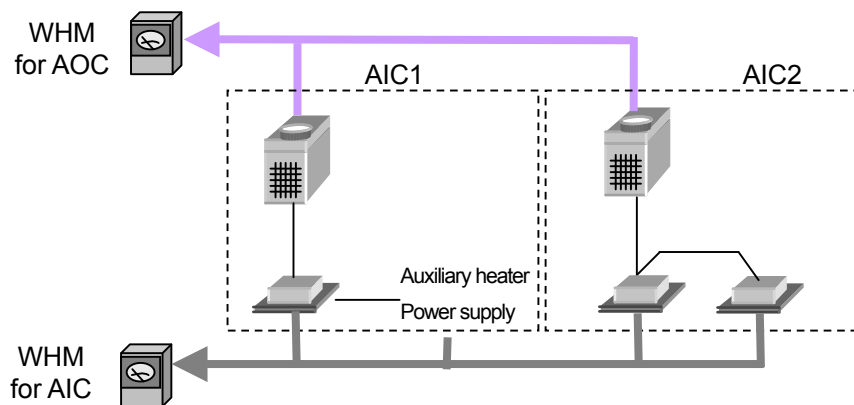
WHM for AOC

AIC1   AIC2

Auxiliary heater
Power supply

WHM for AIC

Regardless of the number of the indoor units that are connected to the outdoor unit, certain settings on the indoor units are determined by the configuration of what is shown in the dotted lines in the figure above.

When the billing for the indoor unit and the auxililary heater for indoor unit are not charged, or it is collected separately, WHM for AIC is not necessary.

<Necessary setups>

Menu	Item	Setting	Note
User setting 2	WHM/Measurement meter connection Energy monitoring function Charge for A/K control unit	Other than no connection Activate Activate	A-controller is set to "AOC/AIC Separated power supply".
AG-150A/G-50A connection set-up	AG-150A/G-50A setup	Set according to the system.	-
System configuration set-up	Unit composition set-up Set-up of group	No setup is required for AOC.	-
Measurement meter set-up	PLC and Measurement Meter Set-up	Set according to the system.	-
Energy monitoring set-up	Division mode Relation between OC and WHM OC setting Relation between IC and WHM IC setting Charge Blocks	Set according to the system.	-
Charge setup	Charge time zone setup	Set according to the system.	-

・ Make other settings if necessary.

・ License registration of electricity apportioning billing function must be made on AG-150A/G-50A.

3. Billing system of K-control

3-1 When using IC power supply and OC power supply separately (K-control building MULTI and K-control Slim)

WHM for KOC

KIC1   KIC2

WHM for KIC

When the billing for the indoor unit and the auxililary heater for indoor unit are not charged, or it is collected separately, WHM for KIC is not necessary.
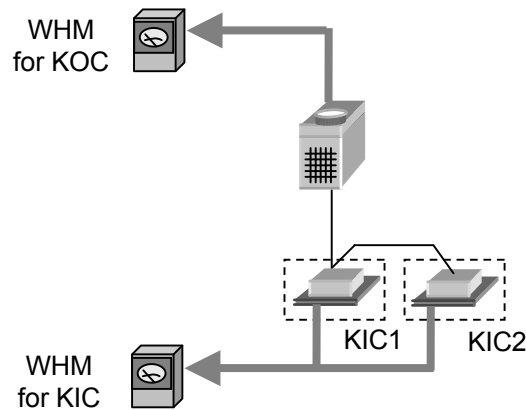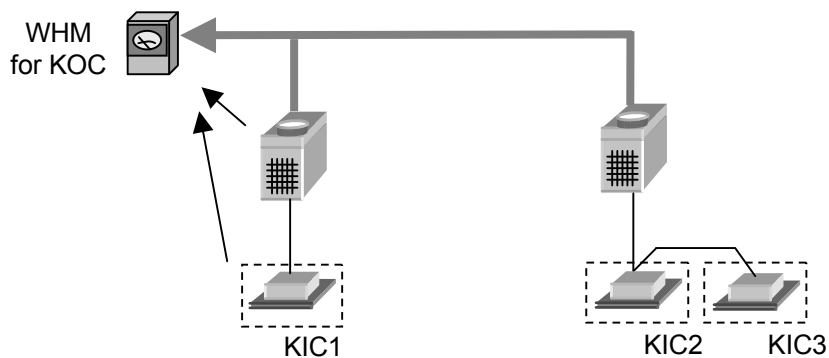
<Necessary setups>

Menu	Item	Setting	Note
User setting 2	WHM/Measurement meter connection Energy monitoring function Charge for A/K control unit	Other than no connection Activate Activate	-
AG-150A/G-50A connection set-up	AG-150A/G-50A setup	Set according to the system.	-
System configuration set-up	Unit composition set-up Set-up of group	No setup is required for KOC.	-
Measurement meter set-up	PLC and Measurement Meter Set-up	Set according to the system.	-
Energy monitoring set-up	Division mode Relation between OC and WHM OC setting Relation between IC and WHM IC setting Charge Blocks	Set according to the system.	When multiple KIC are connected to KOC, set the crankcase heater on only the KIC whose address is the smallest.
Charge setup	Charge time zone setup	Set according to the system.	-

・Make other settings if necessary.

・License registration of electricity apportioning billing function must be made on AG-150A/G-50A.

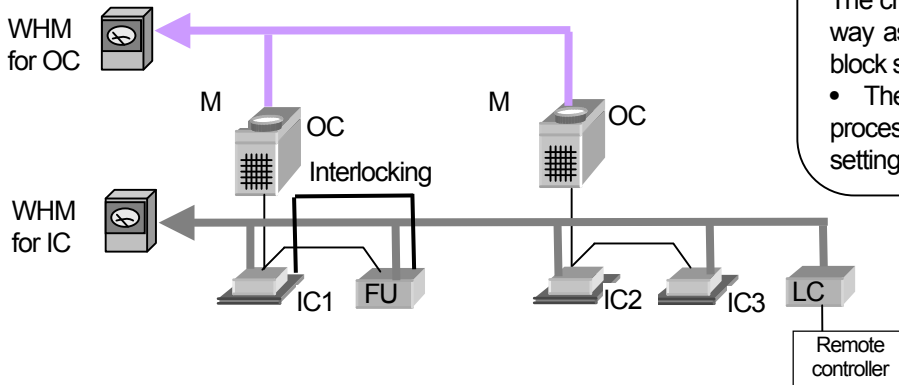3-2 When using OC power supply for IC (K-control Slim)

WHM for KOC

KIC1   KIC2   KIC3

<Necessary setups>

Menu	Item	Setting	Note
User setting 2	WHM/Measurement meter connection Energy monitoring function Charge for A/K control unit	Other than no connection Activate Activate	-
AG-150A/G-50A connection set-up	AG-150A/G-50A setup	-	-
System configuration set-up	Unit composition set-up Set-up of group	No setup is required for KOC.	-
Measurement meter set-up	PLC and Measurement Meter Set-up	Set according to the system.	-
Energy monitoring set-up	Division mode Relation between OC and WHM OC setting IC setting Charge Blocks	Set according to the system.	When multiple KIC are connected to KOC, set the crankcase heater capacity on only the KIC whose address is the smallest. No setup is required for power input and auxililary heater.
Charge setup	Charge time zone setup	Set according to the system.	-

・Make other settings if necessary.

・License registration of electricity apportioning billing function must be made on AG-150A/G-50A

4. Billing system of LOSSNAY

When apportioning the electric amount used by the LOSSNAY (LC) and the OA processing unit (FU)

Note:
• Only the charges of single LOSSNAY with local remote controller can be apportioned. The charges can be apportioned in the same way as the indoor unit by setting the charge block setting.
• The charges of the interlocking OA processing unit can be apportioned by setting the charge block.

WHM	Electric power details	Coefficient used for apportioning
For OC	Outdoor unit power Outdoor unit crankcase heater power	Operation parameter of IC and FU *1
For IC	Indoor unit power input Indoor unit auxiliary heater power LC FAN power FU FAN power	Operation parameter of IC, FU, and LC

*1 Operation parameter varies depending on the set operation apportioning standard. As LC runs without compressor, operation parameter of LC is not used to apportion electric amount of WHM for OC.

<Necessary setups>

Menu	Item	Setting	Note
User setting 2	WHM/Measurement meter connection Energy monitoring function Charge for FU	PLC for measurement meter-connected Activate Activate	*1
AG-150A/G-50A connection set-up	AG-150A/G-50A setup	Set according to the system.	-
System configuration set-up	Unit composition set-up Set-up of group	Set according to the system.	-
Monitor display set-up	Block setup	Set according to the system.	-
Measurement meter set-up	PLC and Measurement Meter Set-up	Set according to the system.	-
Energy monitoring set-up	Division mode Relation between OC and WHM OC setting Relation between IC and WHM IC setting Charge Blocks	Set according to the system.	For charge blocks, FU is displayed separately. Never failure to set up.
Charge setup	Charge time zone setup	Set according to the system.	-

*1 Sets to Activate/Deactivate of FU apportioning function. For LC, apportioning function is always valid regardless of the setting.

・ Make other settings if necessary.

・ License registration of electricity apportioning billing function must be made on AG-150A/G-50A.

MITSUBISHI ELECTRIC CORPORATION